BARGAM

IMPORTANT

Keep this service manual to hand during the machine/ equipment's working life

SELF-PROPELLED SPRAYER (GRIMPEUR 2500 - 3000 MC)

user manual *ENGLISH*

Serial number	Edition **0** **12-2005**

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BARGAM

via della Cooperazione, 20 - 40026 **IMOLA (BO)** - ITALY
tel.+390542648511 - fax +390542640539 -
www.bargam.com - e-mail: salesimola@bargam.com

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REG. N. 3065
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SINCERT

GENERAL AND SAFETY INFORMATION

user manual

Serial number

Edition 2
12-2005

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PURPOSE OF THE MANUAL

This manual has been written by the manufacturer and constitutes an integral part of this machine. The information contained in this manual is intended for persons who are qualified to operate the machine and trained to use it during its expected lifetime.

In addition to adopting good use techniques, the recipients must carefully read and strictly apply this information. This information has been produced by the manufacturer in his own original language (Italian) and can be translated into other languages to satisfy legal and/or commercial requirements.

Time dedicated to reading this information will avoid personal safety, health risks and economic damages.

Should this manual contain additional information compared to the actual parts of the machine, this will not interfere with the reading thereof.

Keep this manual for the entire life of the machine in an easily accessible place for quick reference whenever necessary.

Some of the pictures and pieces of information in this manual may not correspond perfectly to what you have. This does not however hinder operation.

As the manufacturer **is carrying out a policy of continuous product development and updating**, he reserves the right to alter this document without the obligation of prior notice.

To better stress the importance of some passages or to indicate important specifics, symbols, whose meanings are described as follows, have been adopted.

Warning - Caution

Indicates critically dangerous situations that, if neglected, can result in serious personal safety and health hazards.

Danger - Attention

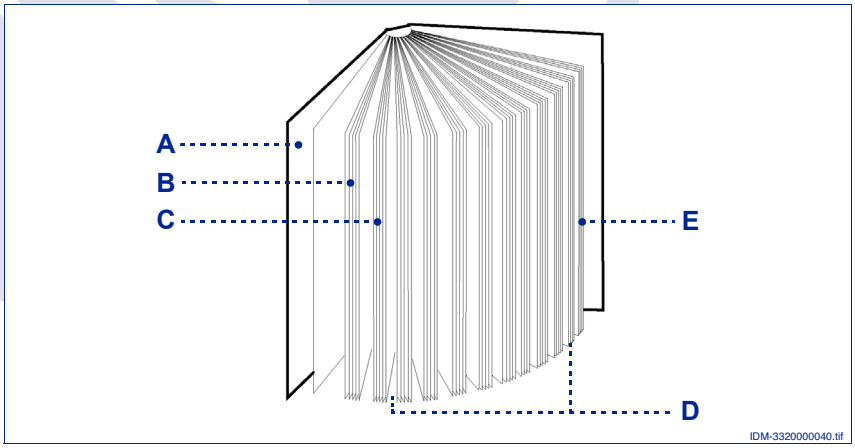
Indicates that suitable actions must be employed in order to avoid personal safety, health hazards and economic damages.

Important

Indicates particularly important technical information that should not be neglected.

COMPOSITION OF THE MANUAL AND METHOD OF REFERENCE

This instruction manual, barring any differences which do not affect the correctness of the information, consists only of the leaflets concerning the machine in question and the operating units which make it up.
The illustration below shows the manual layout.



A) Cover page: indicates the model and the description of the machine including publishing and ID information.
It also contains the list of leaflets relative to the components which can be installed. Some of these components may be missing from this machine.

B) Leaflet 1 - General safety information: contains the information necessary to identify the machine, use the manual as well as all the information regarding safety.

C) Leaflet 2 - General description of the machine: contains the basic principles as well as the manufacturing and operating philosophies.

D) Leaflets 3, 4, 5, 6..... - Information on the operating units installed: they contain all the information relative to each unit installed on the machine.

E) Last leaflet - Technical modifications: it contains any information on the modifications made to the manual over time.

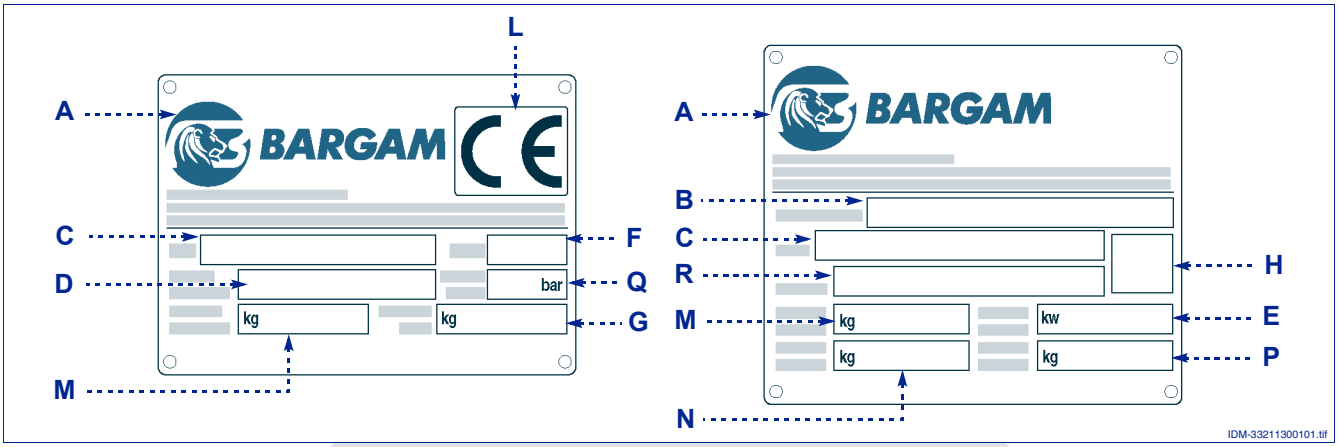
Important

Read this leaflet before the others since it contains more recent information compared to the manual herein.

MANUFACTURER AND MACHINE IDENTIFICATION AND EQUIPMENT

The ID plates shown are applied directly onto the machine.

It contains the references and all the indications necessary for safe operation.



A) Manufacturer identification.
B) Homologation number
C) Machine model.
D) Identification number
E) Total power
F) Year of manufacture.
G) Maximum mass when empty (Kg).
H) Smoke grade index
L) EC conformity mark.
M) Overall maximum mass (kg).
N) Front axle maximum mass (kg).
P) Rear axle maximum mass (kg).
Q) Water system maximum pressure (bar).
R) Frame number.

SERVICE PROCEDURE

Please refer to the Manufacturer's service centres for any need.

For every technical service request regarding the machine, please indicate the data found on the identification plate, the approximate hours of use and the type of fault detected.

DOCUMENTATION ENCLOSED

The following documentation is included with this manual.

– Wiring diagrams.
– Hydraulic system diagrams.
– Oleodynamic system diagrams.
– Documentation on commercial components (pumps, engine, etc.).
– Warranty.
– EC declaration of conformity.
– Nozzle table.

SAFETY REGULATIONS

General regulations

During the design and construction of the machine, the manufacturer has paid special attention to aspects that could place the personal safety and health of the people in charge of operating the machine at risk. In addition to observing the specific laws in force, the manufacturer has adopted all "exemplary construction technique principles". The purpose of this information is to advise the operators to use extreme caution to avoid risks. However, discretion is invaluable. Safety is also entrusted to the staff who operate the machine.

Carefully read the instructions published in the supplied manual and found directly on the machine while strictly observing those concerning safety. Time dedicated to reading will prevent unfortunate accidents; remembering what one was supposed to do when the damage is already done is always too late.

Pay attention to the meanings of the symbols on the applied stickers; their shape and colour are significant to safety ends. Keep them legible and observe the shown information.

Never tamper, dodge, eliminate or by-pass the safety devices installed on the machine. Neglect to respect this requirement may cause serious risk to personal safety and health.

The staff in charge of carrying out any work on the machine during its entire life must have special technical knowledge, particular skills and certified experience in the specific sector. Neglect to observe these requirements may prove hazardous to personal safety and health.

Only wear and use the protective clothing and/or devices indicated in the instructions provided by the manufacturer or work safety laws in force when operating the machine.

Some phases may require the help of one or more assistants. In these cases such persons should be suitably trained and informed on the type of activity being performed, so as not to cause damage to the health and safety of persons.

Handling and loading specifications

Handling and loading must be carried out as per the instructions on the packaging, on the equipment itself and in the manufacturer's handbook.

Handling, loading and unloading must be carried out by trained personnel with specific competence in this field. During manoeuvres while using the equipment the driver must be familiar with the procedures necessary to carry out these operations safely.

The equipment may only be loaded onto and transported by hoisting devices having sufficient carrying capacity, anchored at the points specified by the manufacturer.

All moving and lifting operations must be carried out in compliance with the information supplied on the packaging, on the machine and in the instructions for use supplied by the manufacturer.

The staff in charge of loading, unloading and moving the machine must have skills and certified experience in the specific sector. During manoeuvres, when using the machine directly, the operator must know the procedures required to carry out these operations in safe conditions.

Lifting and transportation must be carried out using suitable means and anchoring the machine in the places provided by the manufacturer. Personnel who are authorised to perform these operations must possess specific skills and experience, to safeguard themselves and others involved.

Before moving the machine with vehicles, make sure that the machine and its components are suitably anchored to the vehicle and that their volume does not exceed the maximum allowable values. Place the required signals if necessary.

It may be necessary to move the machine frequently. To avoid sudden, uncontrolled movement make sure that all parts which could cause this have been safely locked before transportation.

Approved equipment may be driven on public roads by a licensed driver. In any case, before starting transportation, block the parts which could cause sudden unexpected movements and check that the volume does not exceed the maximum allowable values. If necessary, arrange proper signalling.

Operation and use regulations

Apart from being appropriately informed on the use of the machine, the operator must have the necessary skills and knowledge to carry out the specific type work.

Even after having been adequately trained on machine use, perform trial manoeuvres to familiarise the operator with machine controls and functions, start up and arrest in particular, on first use if necessary.

Only use the machine for the purposes expressly intended by the manufacturer. The improper use of the machine could place the personal safety and health of the staff at risk as well as cause economic damage.

The machine has been designed and constructed to satisfy all the operating conditions indicated by the manufacturer. Tampering with any device to achieve services other than those provided may be hazardous to personal safety and health and provoke economic loss.

Do not use the machine if the safety devices are not perfectly installed or in perfect operating condition. Failure to comply with this requirement could place the personal safety and health of people at risk.

During the preparation and use of all chemicals, appropriate measures must be taken in order to avoid placing people’s health and safety at risk and harming the environment.

All residual chemical substances must be disposed of properly according to local laws and regulations. Avoid polluting the environment.

Park the machine in an appropriate area where it does not create any obstacle or danger to circulation. Turn the engine off and take adequate precautions to prevent unauthorised personnel from accessing the driving seat.

Do not allow unauthorised people to get close to the operating area when the machine is being used. If necessary cease operations immediately and have the area at risk cleared.

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Adjustment and maintenance regulations

Keep the machine in perfect working order, performing maintenance as scheduled by the manufacturer. Good maintenance achieves the best machine performance, longer machine life and constant observance of the safety regulations.

Activate all of the security devices provided and evaluate the necessity to adequately inform personnel operating in the near vicinity before performing maintenance or adjustments on the machine. In particular, confine the neighbouring areas to impede access to the devices that could, if activated, produce unexpected danger conditions provoking hazards to personal safety and health.

All maintenance procedures that require precise technical competence or specific skills must be exclusively performed by qualified personnel with acquired certified experience in the specific field.

To perform maintenance in areas that are not easily accessible or dangerous, establish suitable safety conditions for operators and others according to the laws in force pertinent to work safety conditions.

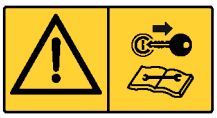
Replace deteriorated parts with originals. Use oils and lubricants indicated in the manual. All these measures can ensure the preservation of the machine and foreseen safety level.

Do not litter the environment with pollutant material; perform disposal according to the pertinent laws in force.

SAFETY AND INFORMATION MARKINGS

Some of the following signals are placed on the equipment, the correct position is shown in the paragraph "signals position". Their meaning is explained below.

Danger: read the manual carefully before any intervention.



Danger: turn the engine off and remove the key from the ignition before any operation.

Danger: do not place any part of your body in the tank.

Danger: do not exceed the pressure shown.

Danger: do not disconnect the battery leads while the engine is running.

Danger - live wires: beware of the electrical wires when the bar is extended and retracted.

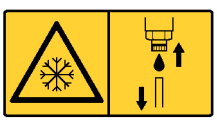
Danger to people walking through: make sure there are no unauthorised people in the machine's operating range.

Caution - risk of corrosion: suitable gloves must be worn when handling chemical products.

Caution - risk of falling: do not climb, only use suitable means to access the higher parts of the machine.

Danger: fluid escaping under pressure: do not touch nor approach with any part of your body to avoid abrasions.

Danger of amputation for upper limbs: do not put your hands in mechanisms with moving parts.



Danger: low temperature: disconnect the pressure gauge before winter storage.

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Caution - danger to body: do not go near the moving components.

Lifting point: indicates the lifting cylinder inserition points.

Caution: skidding and overturning risk: disable the operating control and that of the "four steering wheels" before beginning the road circulation.

Danger: Hot surfaces: be careful of hot surfaces.

Danger of impact: be careful of protruding parts.

Prohibited use: do not spray water under pressure to avoid damaging parts.

No access to unauthorised people: do not stand in or walk through the machine's operating range.

Grip points: indicates the manual grip points.

RUMORE RISCONTRATO:..... dB(A)
PROTEGGERE L'UDITO CON CUFFIE O TAPPI ANTIRUMORE
E' VIETATO AVVICINARSI A MENO DI MT. 3 DALLA MACCHINA IN AZIONE
ATTENZIONE: MANTENERE TUTTI I DISPOSITIVI DELLA MACCHINA (MOTORE-SILENZIATORE-ECC.) IN PERFETTA EFFICIENZA, AFFINCHE' NON VENGA ALTERATO IL VALORE DEL RUMORE RISCONTRATO

Protective gear must be worn: protective earmuffs must be worn while operating the machine.

Mandatory use of fresh water: wash your hands after each contact with the chemicals used.

Mask must be worn: to protect the respiratory tract when handling and using chemicals.

Boots must be worn: to protect feet and legs when handling and using chemicals.

Clean water must be used: to fill up the clean water tank.

Mandatory reading of the User manual. The person in charge of the equipment operation shall read the manual in order to know the position and the function of controls as well as to familiarize with all information contained. Always keep the document within reach.

Gloves must be worn: to protect hands from abrasions.

Protective clothing must be worn: to protect the body when handling and using chemicals.

Height adjustment signal: this indicates the height adjustment points when using a lifting hook.

Emergency exit: marks the emergency exit.

SELF-PROPELLED FOR SPRAYING (GRIMPEUR 2500 - 3000 MC)

user manual

Serial number

Edition **0**
12-2005

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IMPORTANT SAFETY INFORMATION

The information in this booklet concerns the functional aspects of the machine operator unit. Nevertheless, in order to protect people from risks, please read carefully the general safety regulations in Booklet 1 and those marked by the special symbols. We remind you that caution is essential; safety is also in the hands af all the operators driving the tractor.

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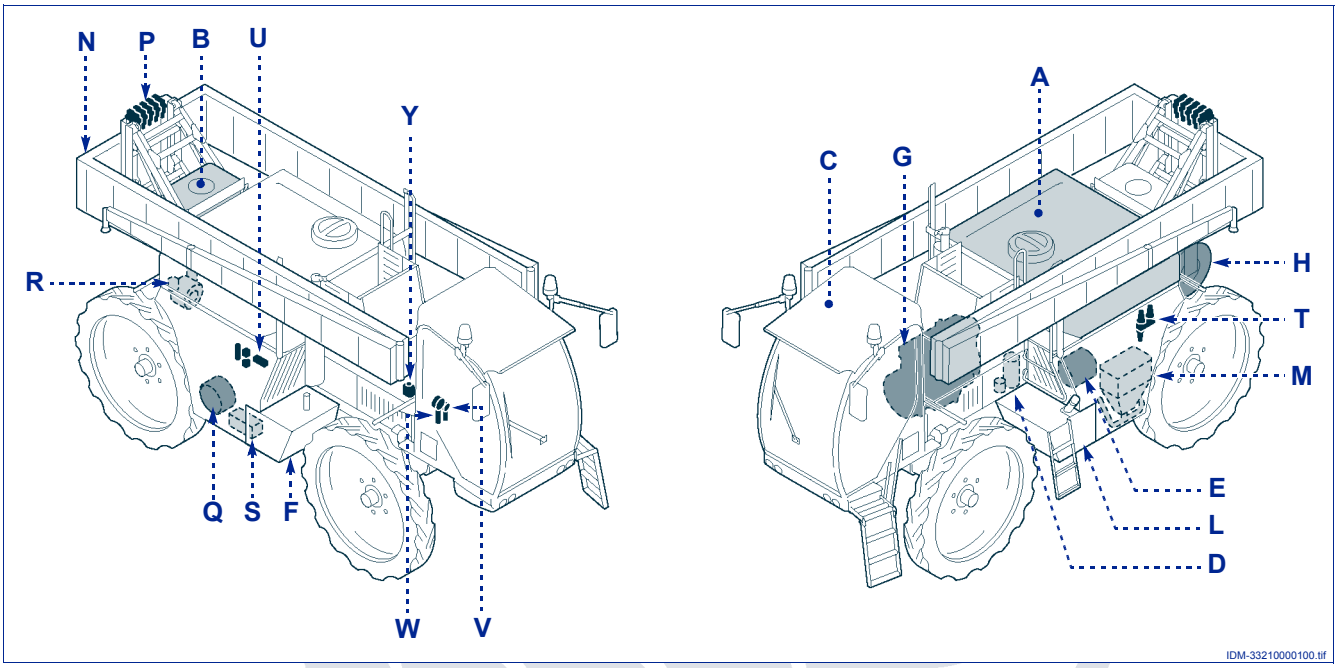
TECHNICAL INFORMATION

GENERAL DESCRIPTION OF THE MACHINE

The sprayer, hereinafter referred to as the machine, has been designed and built for agricultural use and, more precisely, for spraying medium to large surface areas. It can be used to spray chemicals (such as fertilisers, herbicides and pesticides) over the field or directly onto the crops.
Only one operator is required aboard. The operator must be properly trained to drive and operate the machine safely.
In order to protect the operator against contamination risks and to ensure appropriate operating conditions, the machine has been fitted with a soundproof cab with an active carbon filter.
The machine is approved for use on public roads.



Main components

A) Tank; for the product to be sprayed
B) Clean water tank; to clean the system
C) Cab (ROPS); for the operator's seat. It is fitted with all the controls and accessories (windshield wipers, rear-view mirrors, lights, etc.), is soundproof, with anti-glare glass, air conditioning and an active coal filter
D) Row marker foam tank; to distribute the foam which marks the perimeter of the sprayed area
E) Clean water tank; for washing hands
F) Oil tank; to activate the hydraulic devices
G) Endothermic engine; to supply power to the main components
H) Hose winder; to fill the tank, complete with hose
L) Diesel fuel tank; for the engine fuel
M) Mixer; to mix the liquid for spraying
N) Spraying bar; to spray the mixed product
P) Water distribution unit (sectional valves); to select the spraying sectors of the bar
Q) Pump; to pressurise the product to be sprayed
R) Centrifugal pump; to fill the tank with water
S) Battery; to power the electrical system
T) Water cocks; to select filling, mixing, spraying and cleaning
U) General distribution unit; to open and close the supply to the water distribution unit **(P)**
V) Pressure gauge; to measure the pressure of the service water system. Should the central spraying system be retracted or in the event of a pressure gauge **(W)** malfunction, it measures the indicative bar supply pressure
W) Pressure gauge; to measure the bar operating pressure
Y) Tank; to store the oil for the pedal service brake

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GENERAL DESCRIPTION OF THE CAB

The diagram shows the main components.

A) Seat; for the operator to sit on. It is adjustable, to ensure the appropriate ergonomic conditions (see page 18)

B) Steering wheel and controls; adjustable to provide the appropriate ergonomic conditions for the operator (see page 18)

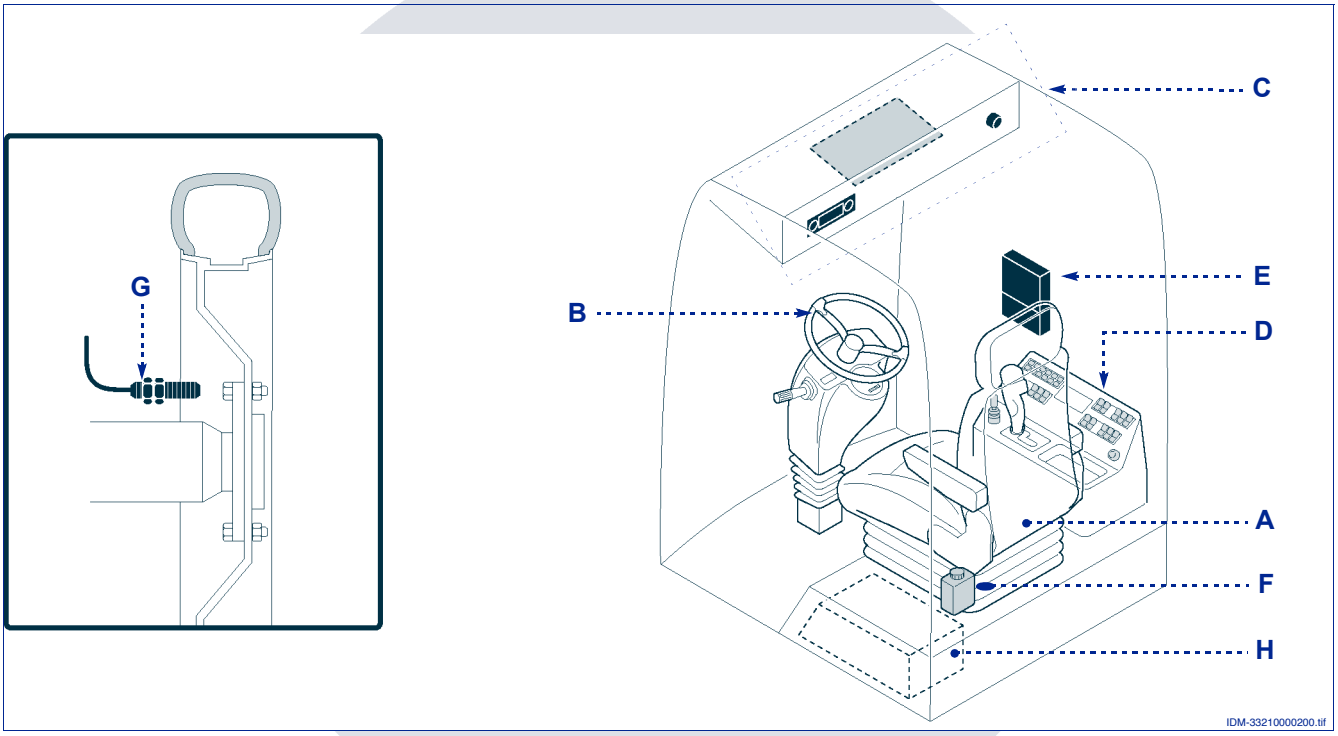
C) Cab controls; to enable the service devices and interior cab light (see page 32)

D) Controls for use and forward motion; to enable all the operating functions of the machine (see page 30)

E) Computer; to programme and manage the spraying functions. It is connected to a sensor **(G)** which measures the sprayer's forward speed, in accordance with which the computer regulates the flow of the product that needs to be sprayed (see leaflet 13)

F) Windshield wiper fluid tank; to store the windshield wiper detergent

H) Glove compartment



IMPROPER USE

– Any use of this machine for purposes other than agricultural ends cannot be deemed to comply with the manufacturer's instructions; the manufacturer is consequently relieved of any liability for damages caused by such a use, and the operator shall also be fully liable towards any third parties involved.

– Before operating the machine, it is vital that you check carefully for the presence of any overhead electrical wires which the bars may interfere with, placing the operator's safety at risk.

– Road circulation is allowed for authorised machines. Operators must comply with the requirements set forth by the laws in force. In any case, before starting transportation, block the parts which could cause sudden unexpected movements and check that the volume does not exceed the maximum allowable values. If necessary, arrange proper signalling.

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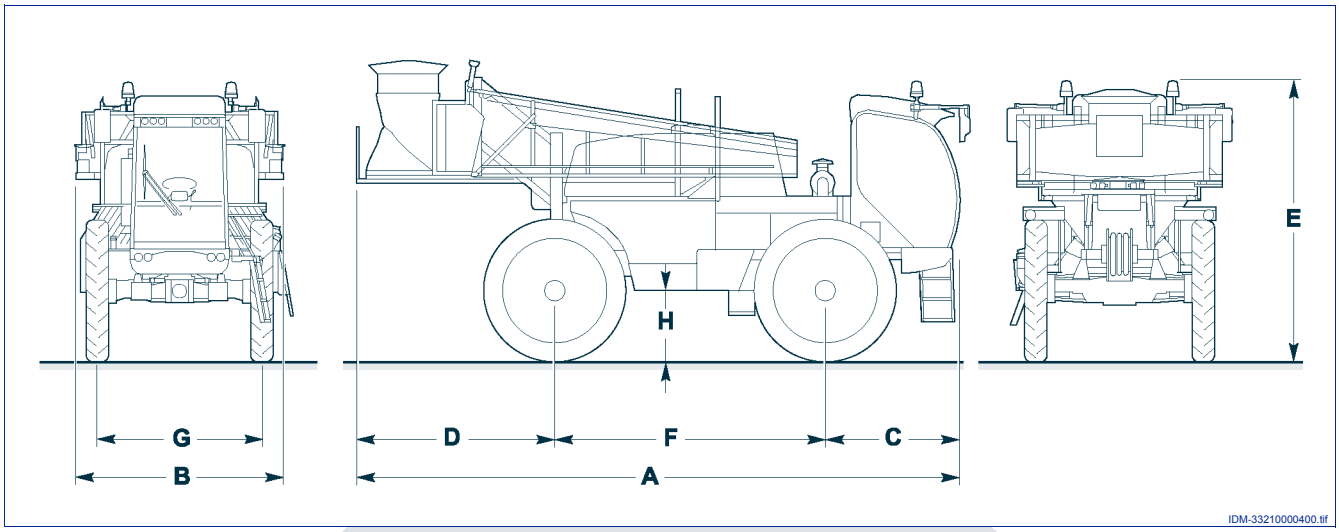
TECHNICAL SPECIFICATIONS



Engine 129 kW (175 HP)
Brand.....IVECO - AIFO
Type F4GE0684C
Cylinders 6
Total CCs ..... 6700 cm^3
Maximum capacity ..... 129 kW a 2400 rpm
Cooling system.....Water

Transmission..... hydrostatic

Hydrostatic pump ..... SAUER-DANFOSS 90R100
Hydrostatic motor ..... SAUER-DANFOSS 51D110-1

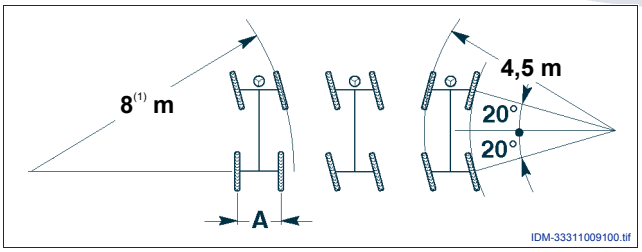
Wheel flanges (front and rear): they allow to modify the track, according to their assembly.

Steering
– wheel with power steering system Sauer-Danfoss OSPC 160LS for two or four wheels

Emergency parking brake: oil-bath multidisk with electrohydraulic command on the front wheels

Service brake: oil-bath multidisk on the four wheels with foot command

Turning radius



(1) With 1800 mm track **(A)**

Size
A.....6,80 m (7,40 m with air-assisted kit)
B..... 2,50 m (3,00 m with bar P5)
C.....1,65 m
D..... 1,85 m (2,45 m with air-assisted kit)
E.....3,40 m
F .....3,30 m

Weight 2500 MC: during operation and with operator aboard; values refer to machine fitted with the largest tyres
Overall weight.....(empty) 6100 (full) 8600 Kg
Front axle .....(empty) 3300 (full) 4200 Kg
Back axle.....(empty) 2800 (full) 4400 Kg

Weight 3000 MC: during operation and with operator aboard; values refer to machine fitted with the largest tyres
Overall weight.....(empty) 6100 (full) 9100 Kg
Front axle .....(empty) 3300 (full) 4300 Kg
Back axle.....(empty) 2800 (full) 4800 Kg
Note: The weight of the machine equipped with the air-assisted kit should be increased by 200 kg.

Hydraulic system
Diesel fuel tank.....230 l
Hydraulic oil tank .....165 l
Water pump
hydraulic motor ..... SAUER-DANFOSS OMS-125
Self-priming pump
hydraulic motor ..... CASAPPA PLM 20.25

Water system
Tank ..... 2500 - 3000 l
Cleaning water tank.....275 l
Hand-washing tank.....17 l

Electrical system
Normal voltage ..... 12 Volt
Alternator: n.1 ..... 120 A
Battery: n.1 ..... 12 Volt 140 Ah

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TYRE TABLE

GRIMPEUR 2500MC - 3000MC Tyres	Max allowable load and speed		Pressure	Max speed		Track (G)	Minimum height from the ground (H)
				Transfer	Work		
	Kg	Km/h	bar	Km/h	Km/h	m.	cm
600/65 R28 (ømm 1491x591)	3075 3780	40 20	1,6	21 - 34	5 - 9	2,25	61
710/55 R30 (ømm 1232x630)	3650 4490	40 20	1,6	22 - 35	6 - 9	2,35	61
600/60 - 30.5 (ømm 1495x600)	3420 4200	40 20	2,2	22 - 35	6 - 9	2,25	64
800/45 - 30.5 (ømm 1500x800)	4085 5024	40 20	1,5	21 - 34	6 - 9	2,35	61
540/65 R34 (ømm 1566x550)	2900 3560	40 20	1,4	23 - 37	6 - 10	2,20	63
270/95 R38 (ømm 1468x290)	2300 2830	40 20	3,6	21 - 34	6 - 9	1,80 - 2,00 - 2,25	62
420/85 R38 (ømm 1675x429)	2575 3167	40 20	1,6	24 - 39	6 - 10	2,05	70
540/65 R38 (ømm 1675x550)	3080 3790	40 20	1,4	24 - 39	6 - 10	2,20	68
270/95 R42 (ømm 1565x284)	2430 2990	40 20	3,6	23 - 36	6 - 10	1,80 - 2,00 - 2,25	67
300/95 R42 (ømm 1617x316)	2725 3350	40 20	3,6	24 - 38	6 - 10	1,80 - 2,00 - 2,25	70
270/95 R44 (ømm 1625x270)	2500 3075	40 20	3,6	24 - 38	6 - 10	1,80 - 2,00 - 2,25	70
300/95 R46 (ømm 1724x309)	3080 3790	40 20	3,6	25 - 40	7 - 11	1,80 - 2,00 - 2,25	74
270/95 R48 (ømm 1710x284)	2650 3260	40 20	3,6	25 - 40	7 - 11	1,80 - 2,00 - 2,25	75

NOISE LEVEL

The table shows the noise levels according to operating conditions and measurement points.

With engine at maximum rpm	LAcq - dB(A)
Operator's seat	79,3
Noise pollution	112,5

VIBRATION LEVEL

In the operating process, the machine has different vibration levels, as indicated in the table.

Measuring point	Vibration level (m/s2)	Highest acceptable value (m/s2)
Body, head, arms and hands	0,46	0,5

The measurements have been calculated by following the **ISO 2631/1** standards.

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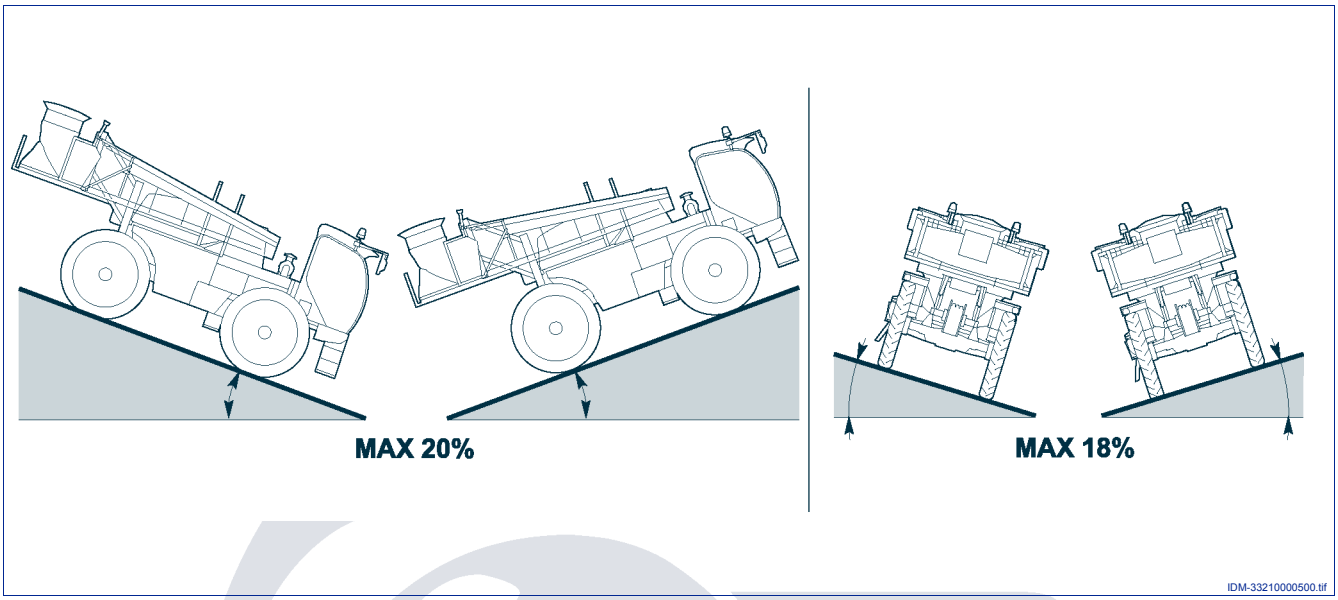
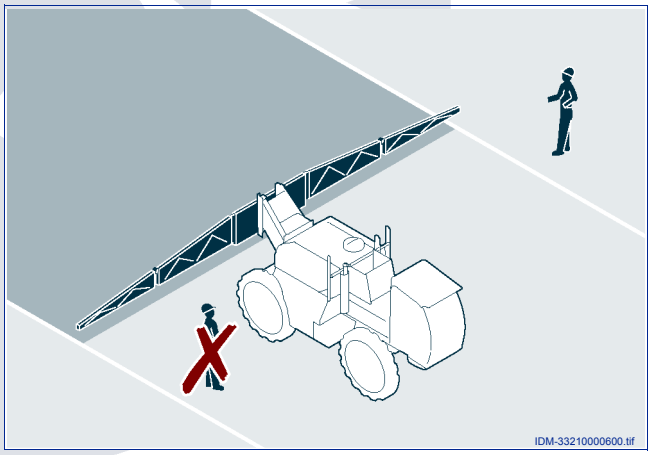
ALLOWABLE SLOPES

The figure illustrates the maximum allowable slope on non-yielding, non-sagging land with the machine in operation and fully loaded.



DANGER ZONE

The figure illustrates the danger zones where no-one should be when the machine is in use. It is the operator's duty to keep such zones out of bounds; if necessary, (s)he should turn the engine off and clear out the danger zone.



SAFETY DEVICES

The figure illustrates the position of the safety devices on the machine.

A) Battery connector; to disconnect the batteries from the electrical circuit. The batteries must be disconnected during all maintenance operations. After disabling the ignition key, turn the key towards the left and remove it from its housing.

B) "Product distribution to bar exclusion" switch; to exclude the bar distribution controls, especially during transfer with closed bars

C) "Operating controls exclusion" switch; to enable and disable the operating controls

D) "Rear steering exclusion" switch; to enable and disable the rear steering

E) Emergency exit; To get out of the machine in the event of an emergency. Use the hammer **(L)** to break glass

F) Acoustic signal; to warn staff members near the machine that it is reversing or that bar movements are under way

G) Tank level sensors; to prevent the machine from being put into faster gears when there is water in the tank (max. 20 km/h)

H) Spraying bar arm support; to secure the closed bar in order to avoid any sudden extension of the arms during road circulation

L) Hammer; use to crash glass in an emergency.

M) Shut-off valve; hydraulic device to block lifting device during maintenance.

N) Seat belt

Caution - Precaution

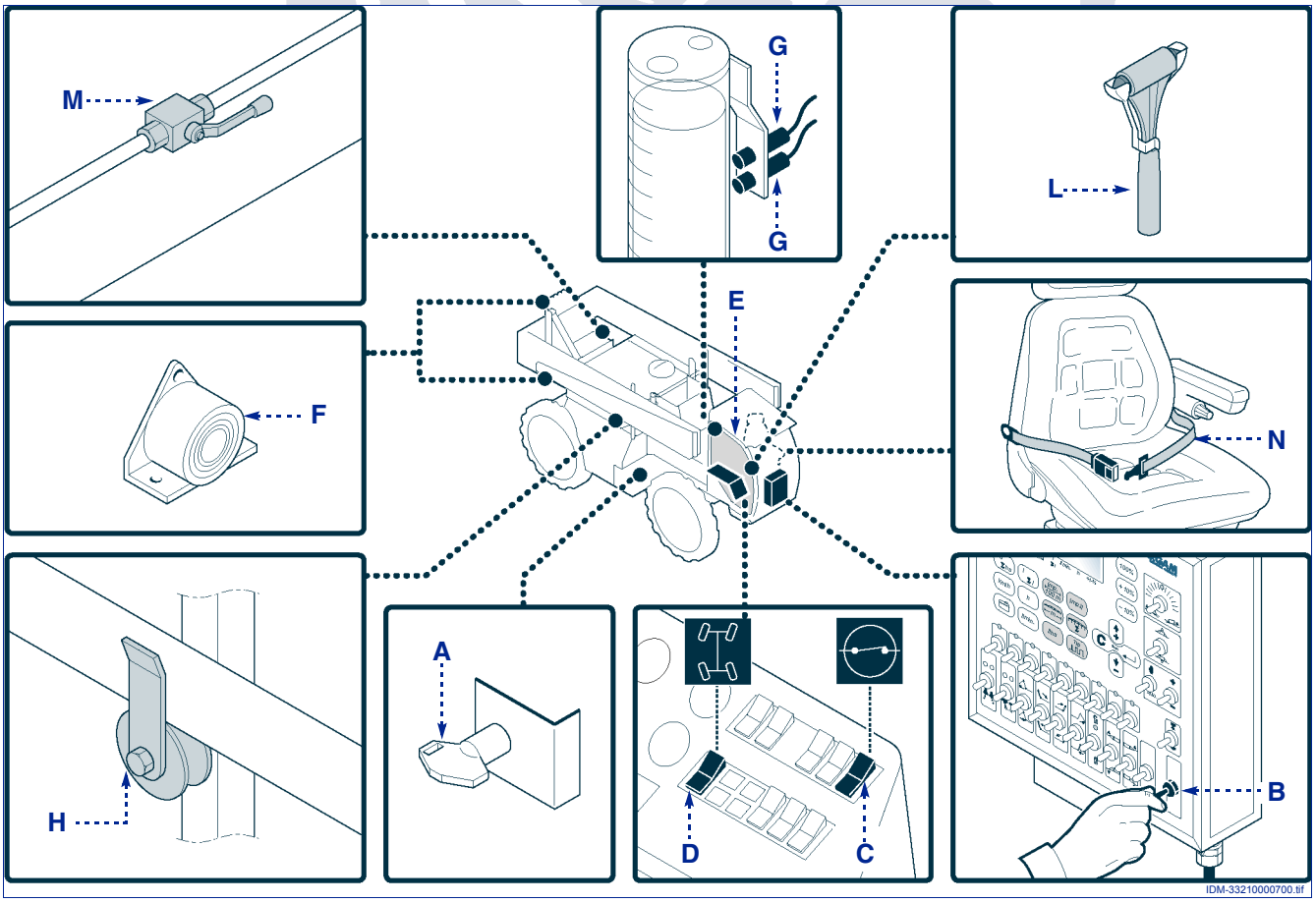
The "4 wheel drive" operation can be selected only when in first gear and with the 4 wheels aligned.

Danger - Warning

Disable the "operating control" (C) and that of the "rear steering exclusion" (D) before beginning the road circulation.

Caution - Precaution

Check every day that the safety devices are installed and function properly.



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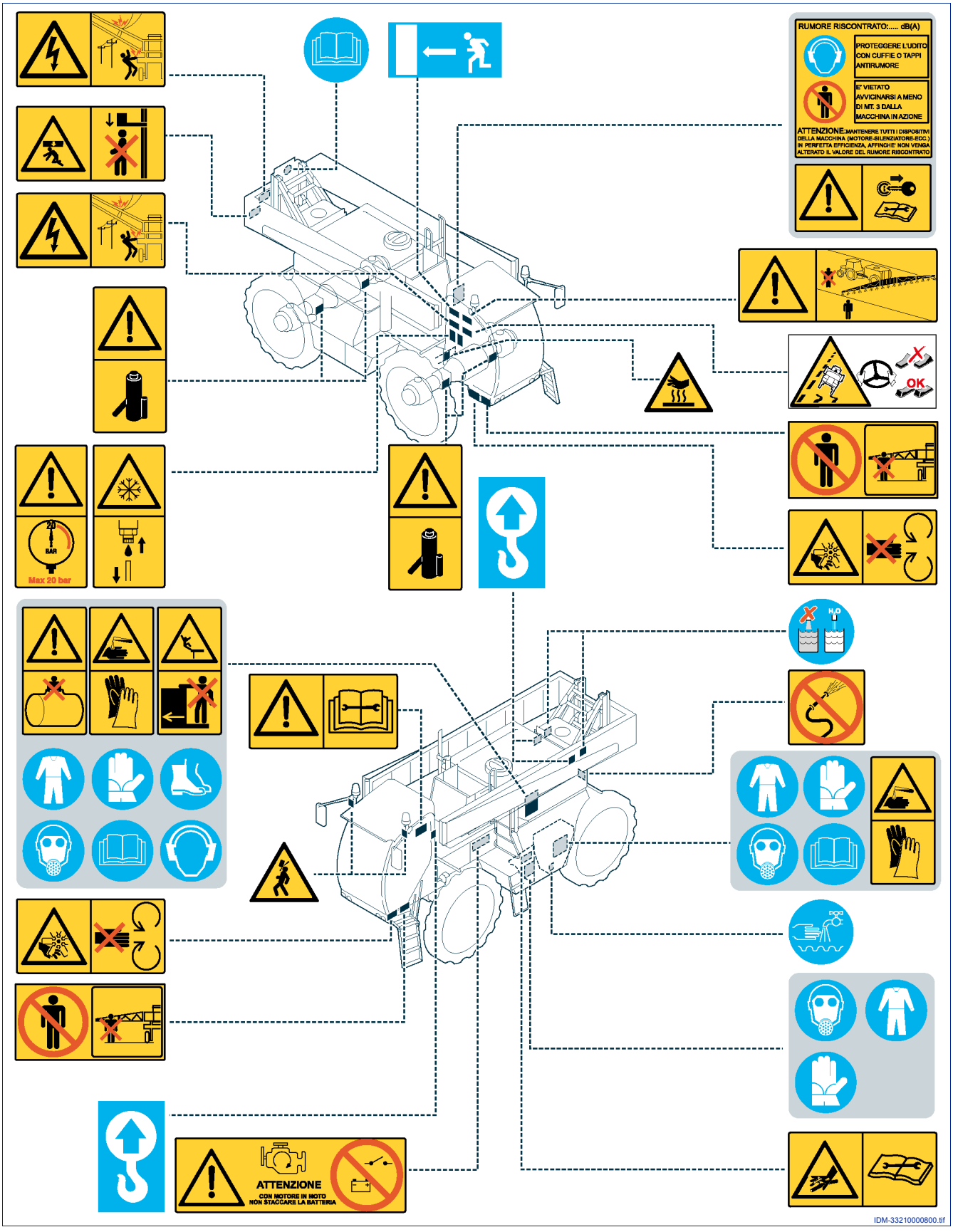
POSITION OF PLATES

The figure shows the location of all safety plates, while their meaning is explained in booklet 1.

Important

Make sure the plates are completely legible; if this is not the case, replace them and reposition them in their original place.


RUMORE RISCONTRATO:..... dB(A)
PROTEGGERE L'UDITO CON CUFFIE O TAPPI ANTIRUMORE
E' VIETATO AVVICINARSI A MENO DI MT. 3 DALLA MACCHINA IN AZIONE
ATTENZIONE: MANTENERE TUTTI I DISPOSITIVI DELLA MACCHINA (MOTORE-SILENZIATORE-ECC.) IN PERFETTA EFFICIENZA, AFFINCHE' NON VENGA ALTERATO IL VALORE DEL RUMORE RISCONTRATO
OK
Max 20 bar
ATTENZIONE
CON MOTORE IN MOTO NON STACCARE LA BATTERIA
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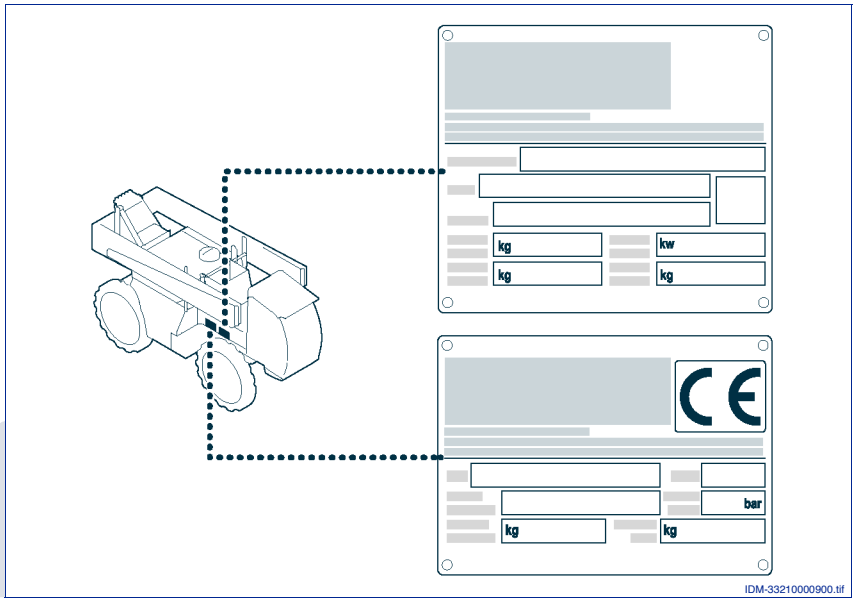
POSITION OF IDENTIFICATION PLATES

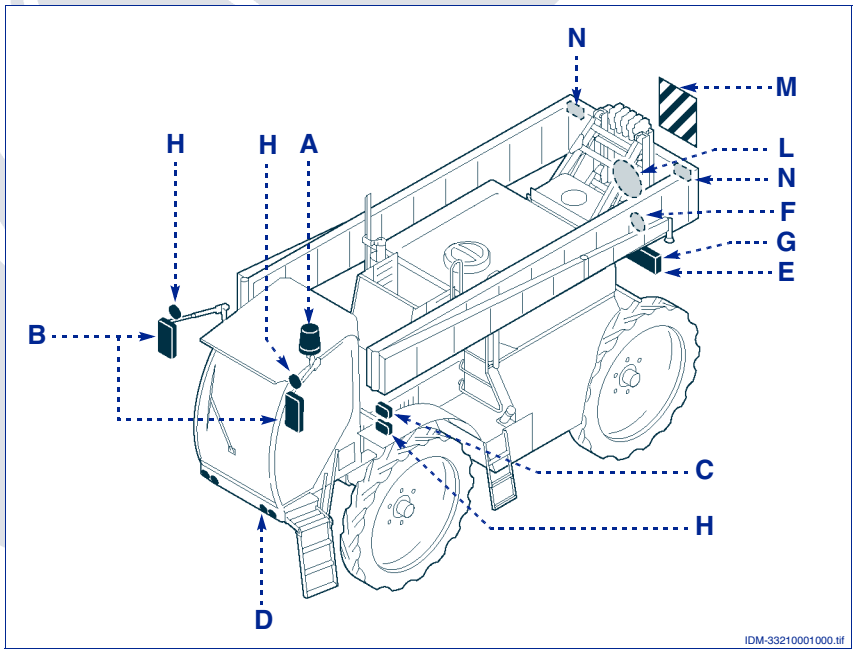
The figure shows the position of the identification plates.



DEVICES FOR ROAD CIRCULATION

The machine is provided with all the devices for road circulation in compliance with the regulations in force.
The figure shows the position of the safety devices.

A) Flashing light
B) Rear-view mirrors
C) Front direction indicator lights
D) Front lights
E) Rear lights (position lights, direction indicator lights, brake lights)
F) Rear reflectors
G) Licence plate light
H) front overall lights
L) Maximum allowable speed panel (homologation)
M) Refractive panel
N) rear overall lights



TOOL KIT

The following tools are supplied standard with the machine:

– 1 set of 6÷32 ordinary spanners
– 2 screwdrivers
– 1 set of pliers
– 1 hydrostatic transmission pump filter (see page 48)
– 1 oil tank filter (see page 62)
– 2 hydraulic system filters (see page 62)
– 1 foaming agent container 2,5 l
– 2 complete jets
– 2 flexible hoses for shock absorber adjustment
– 2 ø 1/4”; flexible hoses for shock absorber adjustment and machine lifting
– no. 1 cable joystick to adjust suspensions and to lift the machine
– 1 "Kit Air Assisted" pump filter

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INFORMATION ABOUT HANDLING AND INSTALLATION

INSTRUCTIONS FOR HANDLING AND LOADING

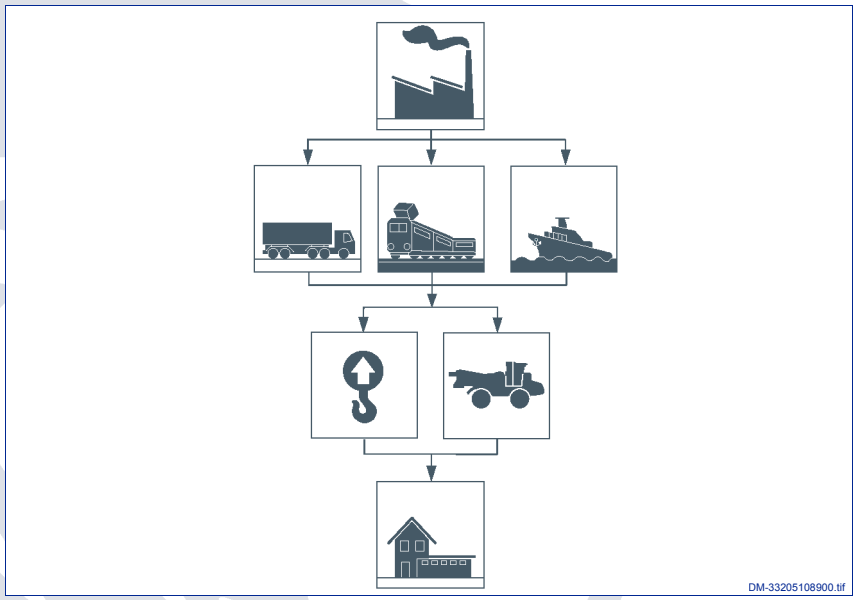
Important

All handling and loading operations must be carried out in compliance with the information supplied on the packaging, on the machine and in the instructions for use supplied by the manufacturer.

If necessary, the person in charge of these operations must organise a “safety plan” to guarantee the personal safety of the operators.

TRANSPORTATION

Based on the destination, the machine can be transported in different ways. The diagram shows the most commonly used solutions.
During transportation, if the machine exceeds the allowable overall dimensions, reduce them as indicated on page 12.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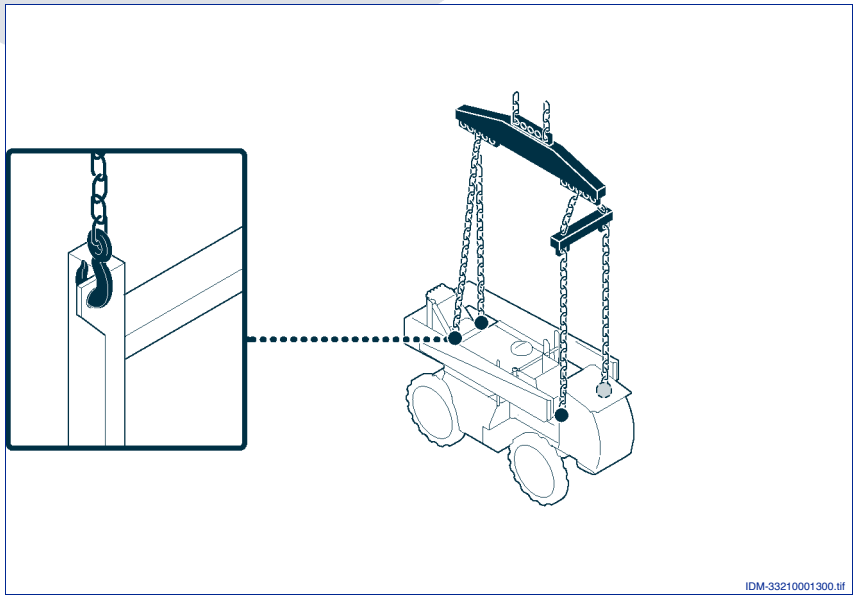
Important

Transport the machine with the spraying product and water tanks empty.

LIFTING FOR TRANSPORTATION

The machine can be lifted using a hook truck featuring a suitable load bearing capacity, with the hooks inserted in the purpose-provided areas on the machine.
When transporting in open top containers, if the maximum height allowed is exceeded disassemble the boom side arms - see boom user manual.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Important

The lifting devices are not provided with the equipment.

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ROAD TRANSPORTATION LOAD

Important

The machine must be transported with a lowboy.

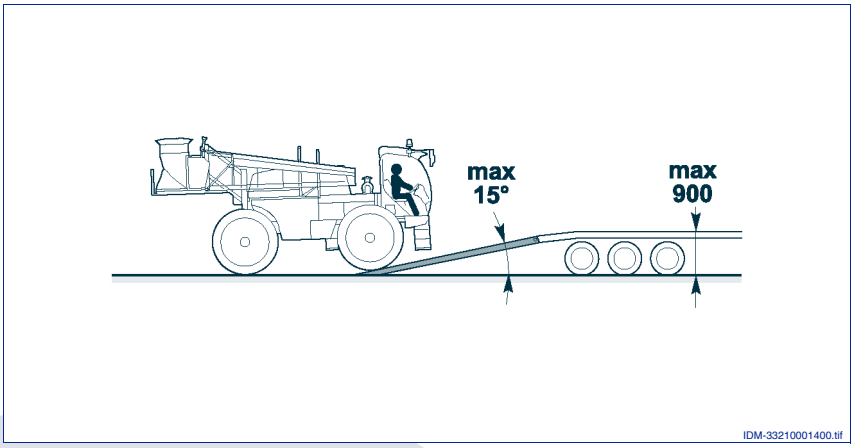
Load the machine as indicated below.

1 - Disassemble the lateral arms of the bar (see instruction manual of the bar) if the bar exceeds 2,55 m in width.

2 - Seal the fittings of any disconnected hoses with caps to avoid leaks.

3 - Load the machine onto the vehicle manoeuvring it from the operator's seat.

4 - Activate the parking brake.

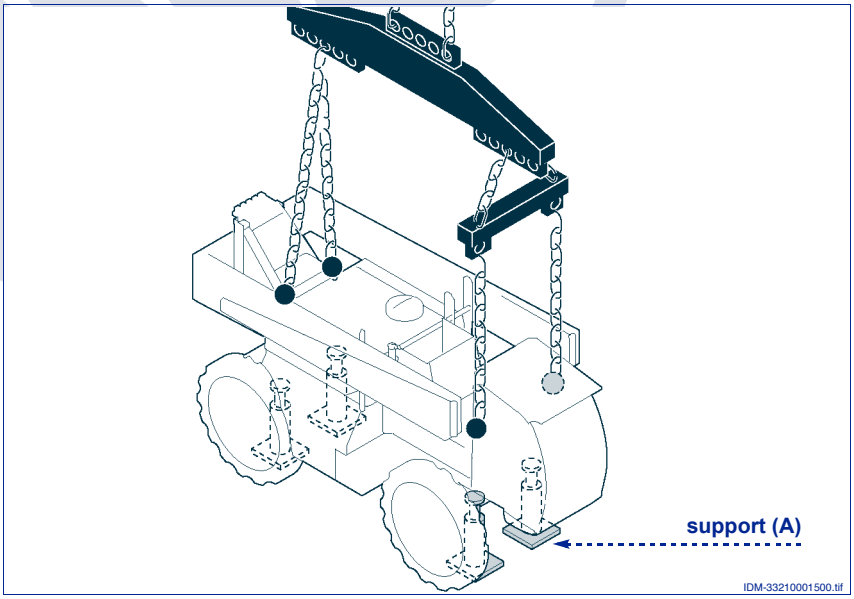


Important

The staff in charge of loading, unloading and moving the machine must have skills and experience acquired in the specific sector. During manoeuvres, when using the machine directly, the operator must be informed on the procedures required to carry out these operations safely.

If the maximum height allowed is exceeded, disassemble the wheels as described below.

5 - Lift the equipment (see "Lifting for transportation") and place it on supports **(A)**.



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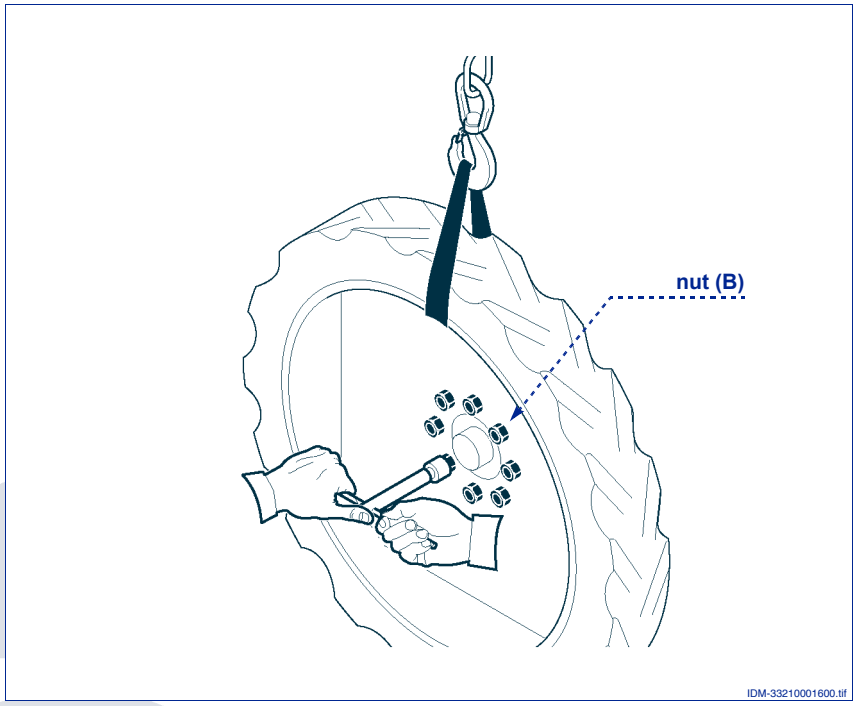
6 - Disassemble the wheels by unscrewing the fixing nuts **(B)**.

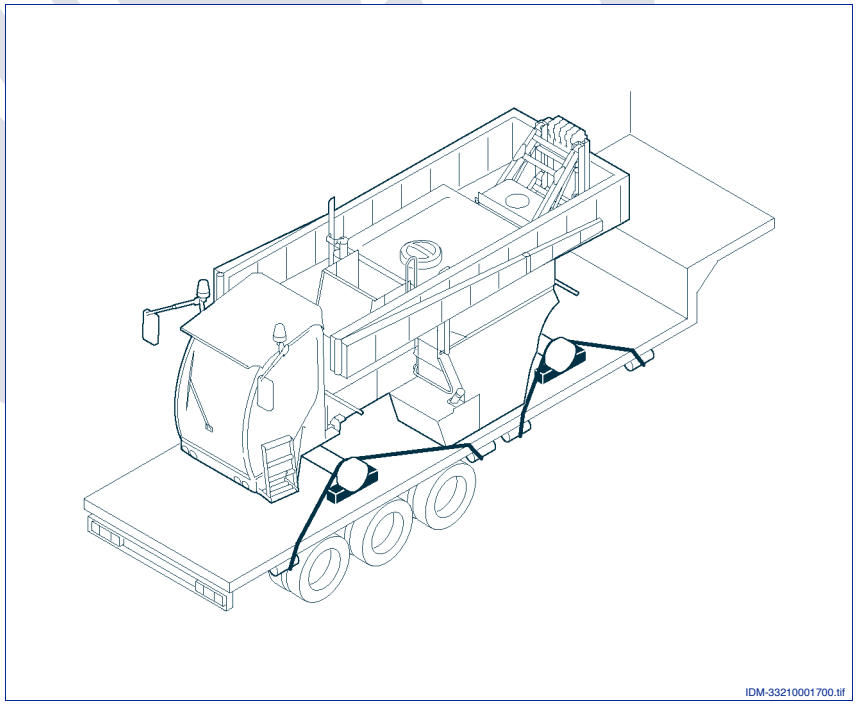
7 - Lift the equipment (see "Lifting for transportation") and place it on the vehicle.



8 - Secure the machine and the disassembled components to the vehicle using ropes and wedges (as shown in the figure).

Important

Secure the ropes to the main frame of the machine.



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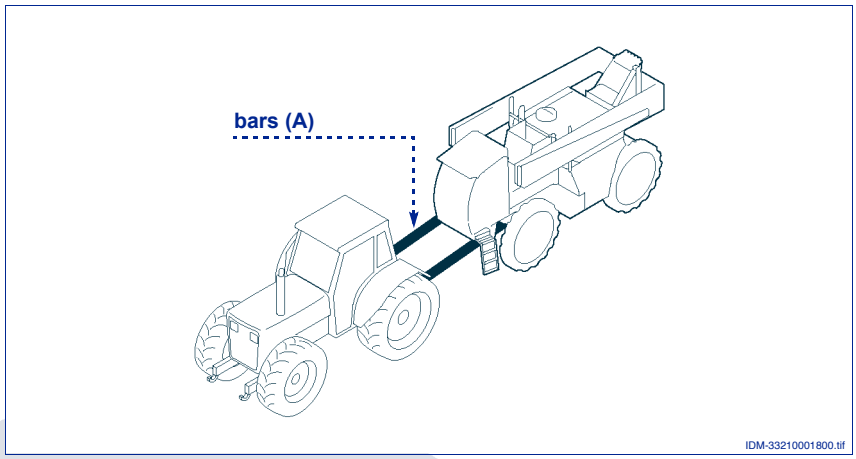
TOWING THE MACHINE

Important

The machine can only be towed for short distances at a speed of no more than 1 km/h. When towing is complete, restore the initial conditions.

For this operation follow the procedure below.



Important

Hook the machine onto a tow truck featuring a suitable load bearing capacity and appropriate dimensions.

1 - Attach the machine to the tow truck with rigid bars **(A)** using the purpose provided attachments.

Important

When towing with the machine engine off, the negative brake should be released.

2 - Uncouple pipes **(B)**. Avoid oil waste in the environment.

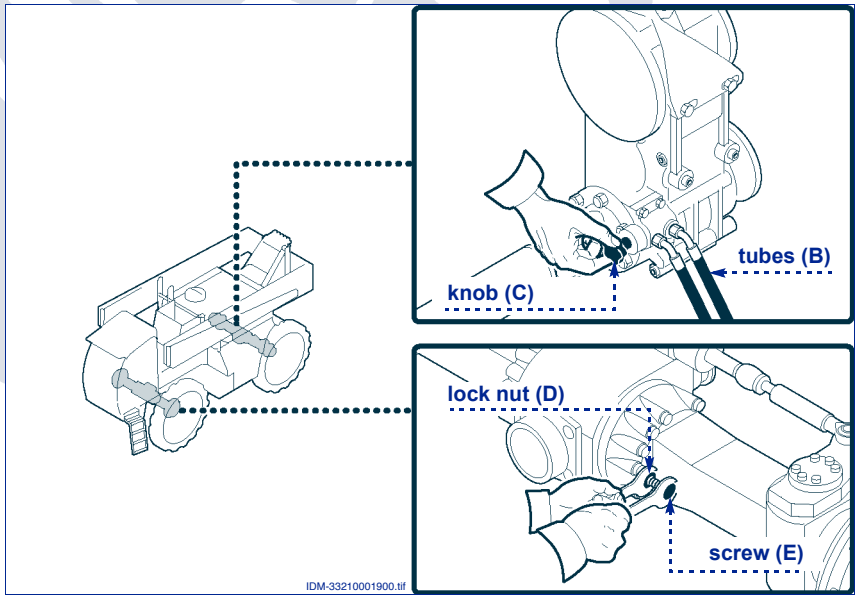
3 - Carefully plug each male and female coupling to keep it clean and to protect threading.

Note: if the diesel engine does not start, unloosen counter-nut (D) and loosen screw (E) to unlock the negative parking brake of the front axle.

4 - Use knob **(C)** to put in neutral.

5 - Tow the machine with the operator in the driver's seat.

6 - Once trailed, return to the initial condition.



INFORMATION ABOUT ADJUSTMENTS

INSTRUCTIONS FOR ADJUSTMENTS

Important

Before carrying out any setting or adjustment, activate all the safety devices required and consider whether it may be necessary to provide proper information to the operators and to the staff working near the machine. In particular, provide proper signs in the areas surrounding the machine and do not allow anyone to access any devices that, when activated, may cause unexpected dangerous conditions, resulting in damages to personal safety and health.

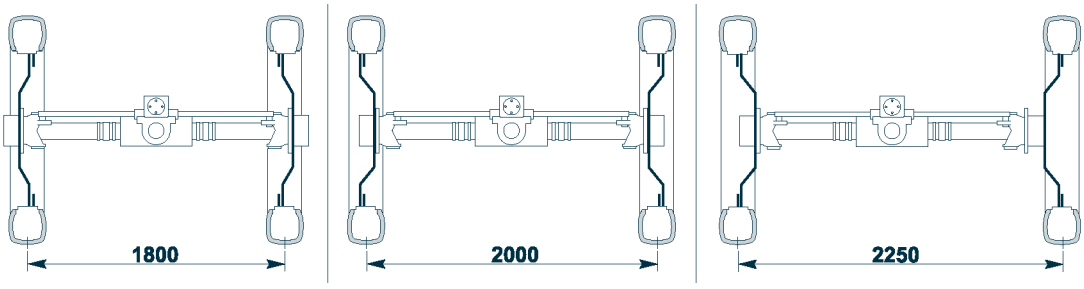
TRACK CONFIGURATION

Different track configurations can be obtained according to the work distance and type of tyre.

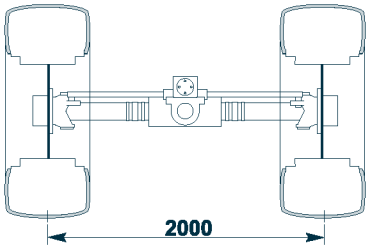
The diagrams illustrate the various combinations possible, also depending on the type of mount.

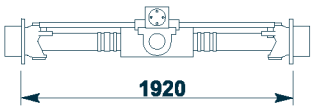
Diagram for 1800 - 2000 - 2250 track

Tyres
270/95 R48
270/95 R44
270/95 R38
270/95 R42
230/95 R44
300/95 R46
340/95 R36
300/95 R42



Tyres
540/65 R34
540/65 R38
800/45 30.5





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TRACK ADJUSTMENT

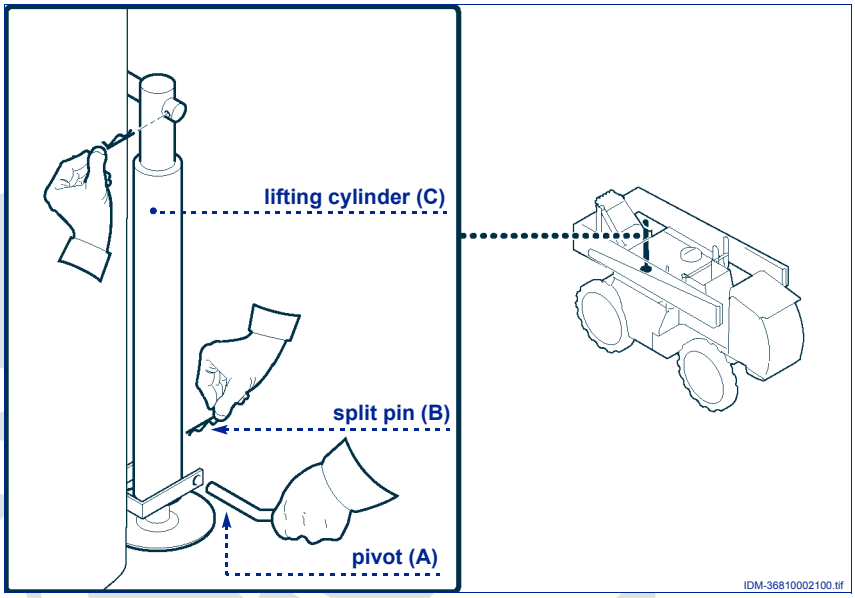
Important

Adjust with the engine on at 1000 revs/min and with the machine standing on level and compact ground to guarantee the stability of the lifting devices.

Make the adjustment one wheel at a time.

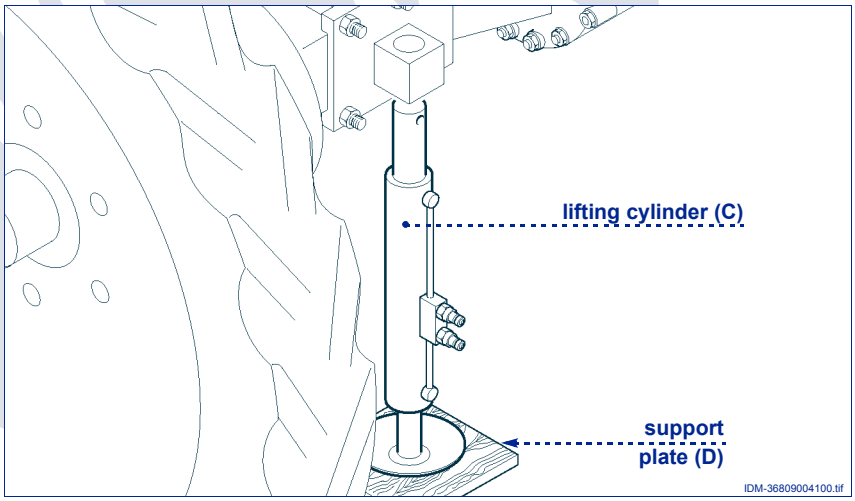
For this operation follow the procedure below.

1 - Pull out the pivot **(A)** and the split pin **(B)** to disassemble the cylinder **(C)**.



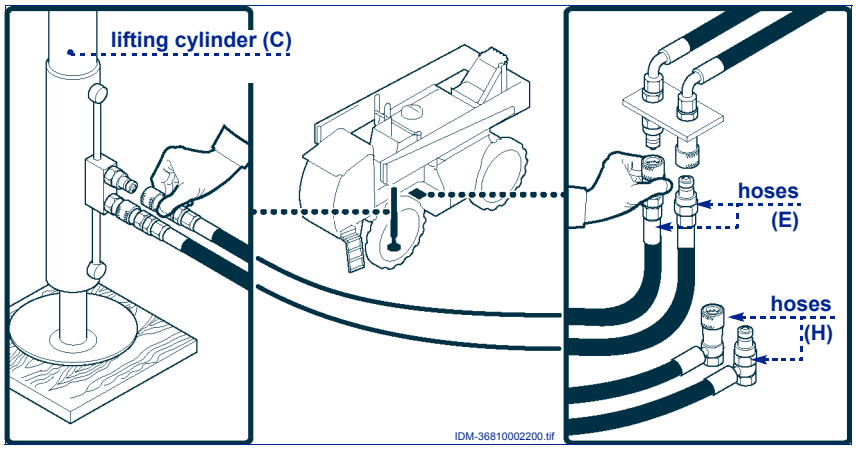
2 - Insert the cylinder **(C)** in the housing provided to lift the axle which needs to be adjusted.

3 - Insert a support plate **(D)** to guarantee a surface which is large enough to support the lifting cylinder **(C)**.



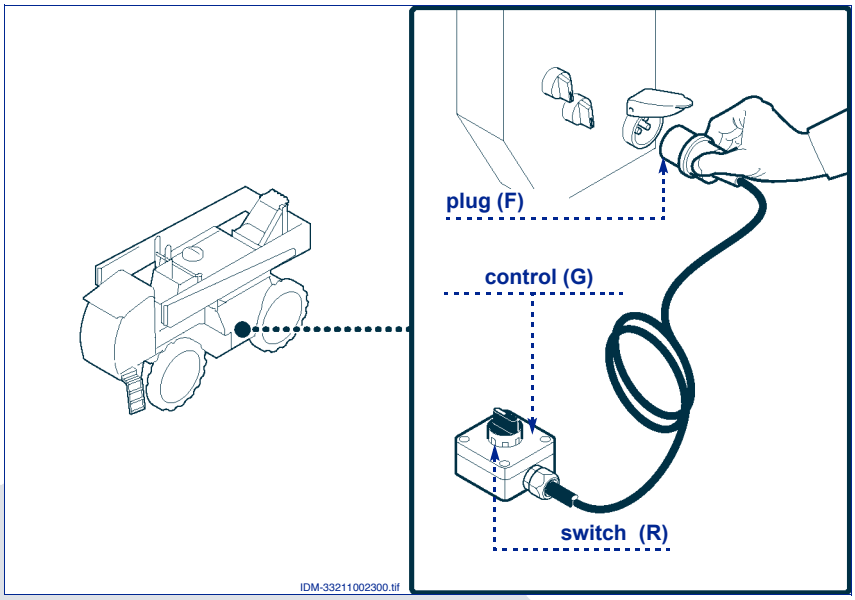
4 - Disconnect hoses **(H)** for ladder control.

5 - Connect the hoses **(E)** on the lifting cylinder **(C)** and on the points of attachment on the machine.

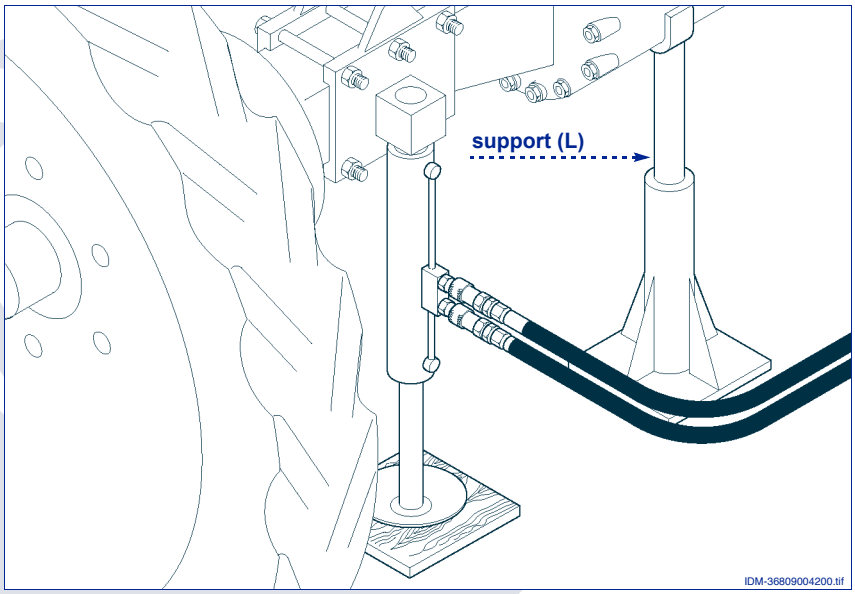


6 - Insert the plug **(F)** to enable the control electrically **(G)**.

7 - Use switch **(R)** to lift the wheel above the ground.



8 - Insert the support **(L)** to ensure that the wheel remains off the ground.

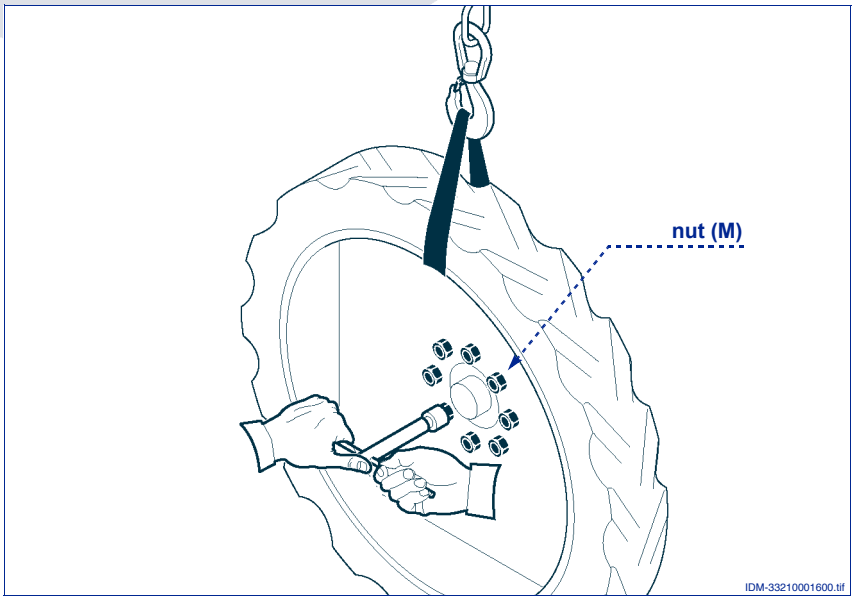


9 - Loosen the wheel fastening nuts **(M)** to remove the wheel and rotate the flange.

10 - Put the wheel back on and secure it with the nuts.

11 - Use switch **(R)**,to lift the axle and remove the support **(L)**.

12 - Use switch **(R)**, until the machine has been lowered completely.



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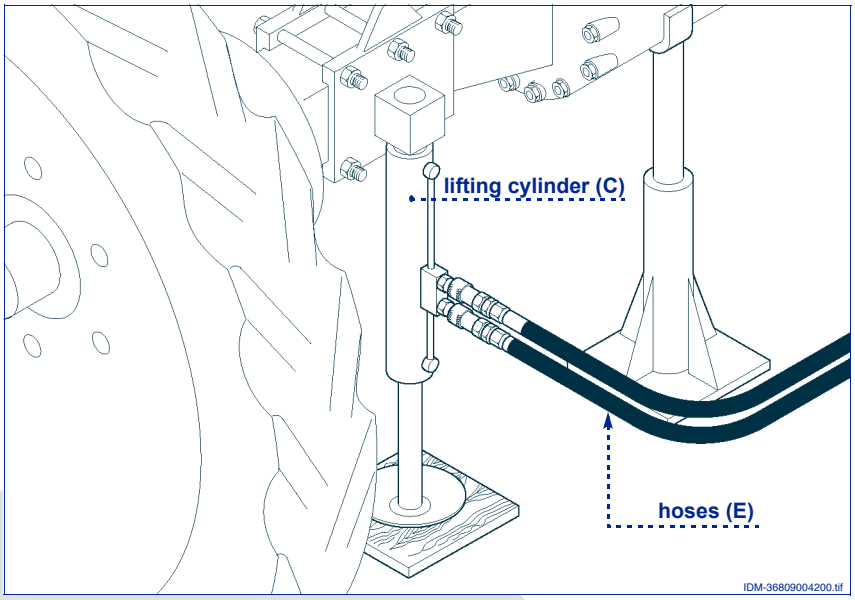
13 - Close the lifting cylinder completely **(C)** and remove it from the support once the operation has been completed.

14 - Repeat the above operations to make the adjustments on the other wheels.

15 - When the adjustments are complete, disconnect the hoses **(E)** and disassemble the lifting cylinder **(C)**. Reposition it in the housings provided when the operation is complete.



OPERATOR'S SEAT ADJUSTMENT

The steering wheel and the seat may be adjusted by the operator to obtain suitable ergonomic conditions.

Important

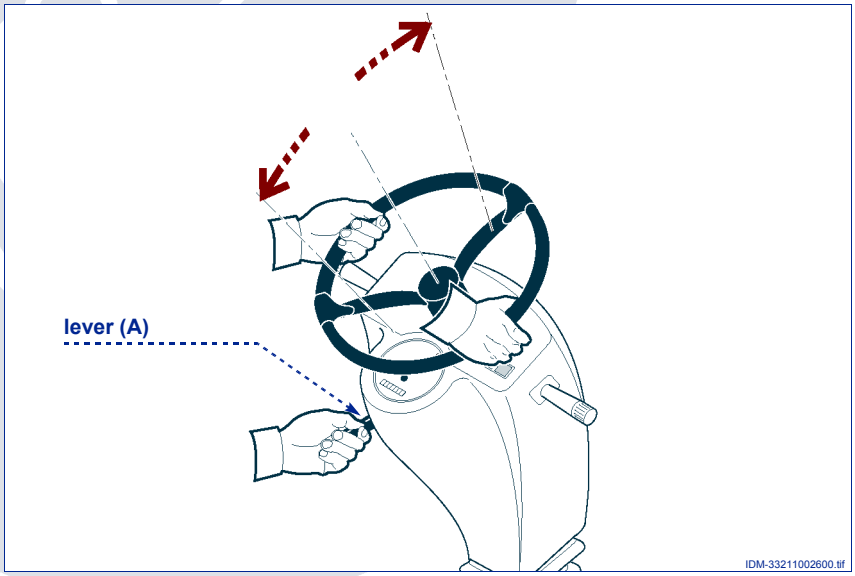
Adjustments must be made when the machine is not in motion.

Steering wheel adjustment

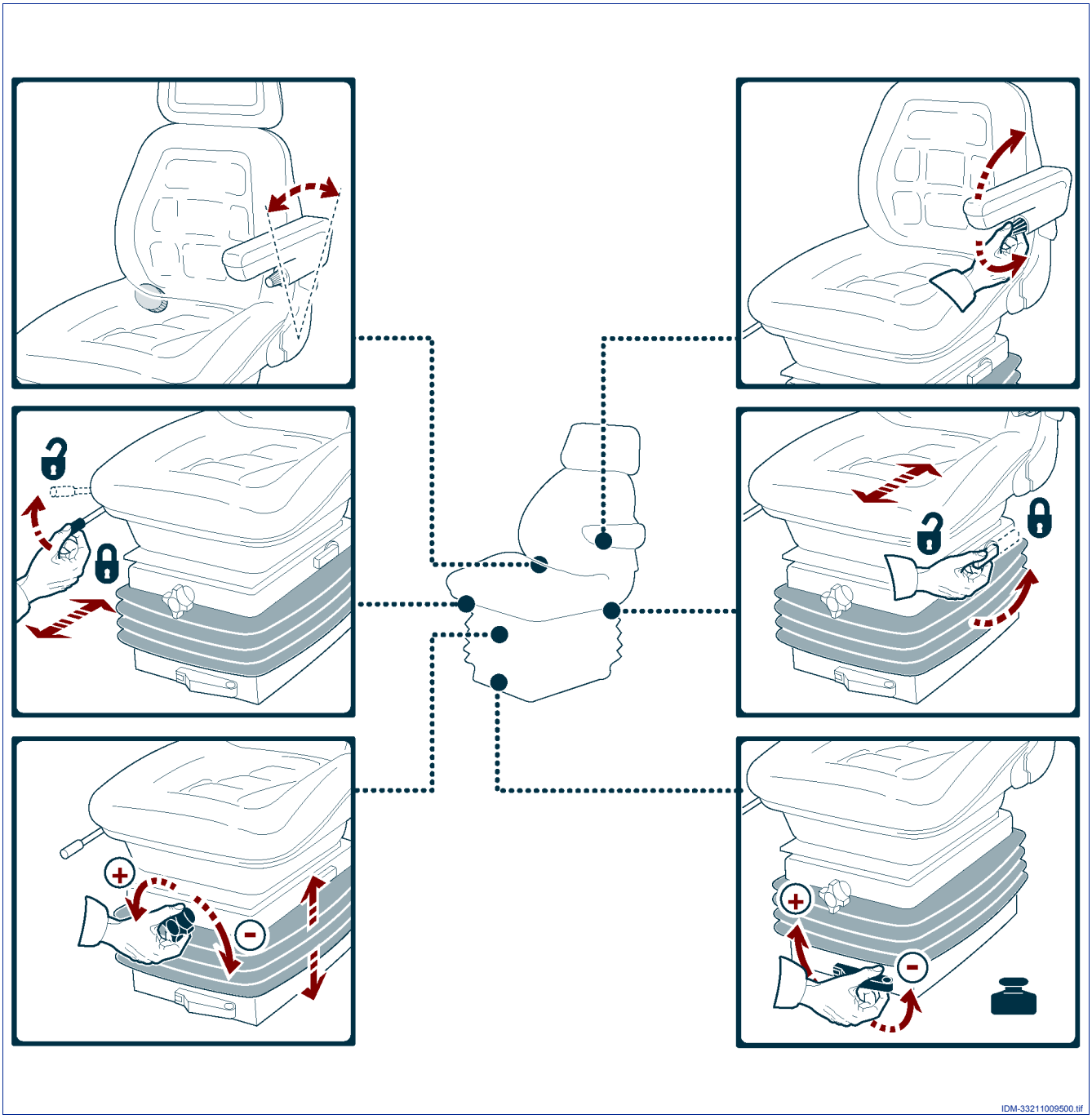
Loosen the lever **(A)**, tilt the steering wheel to the desired position and secure it with the lever **(A)**.

Seat adjustment

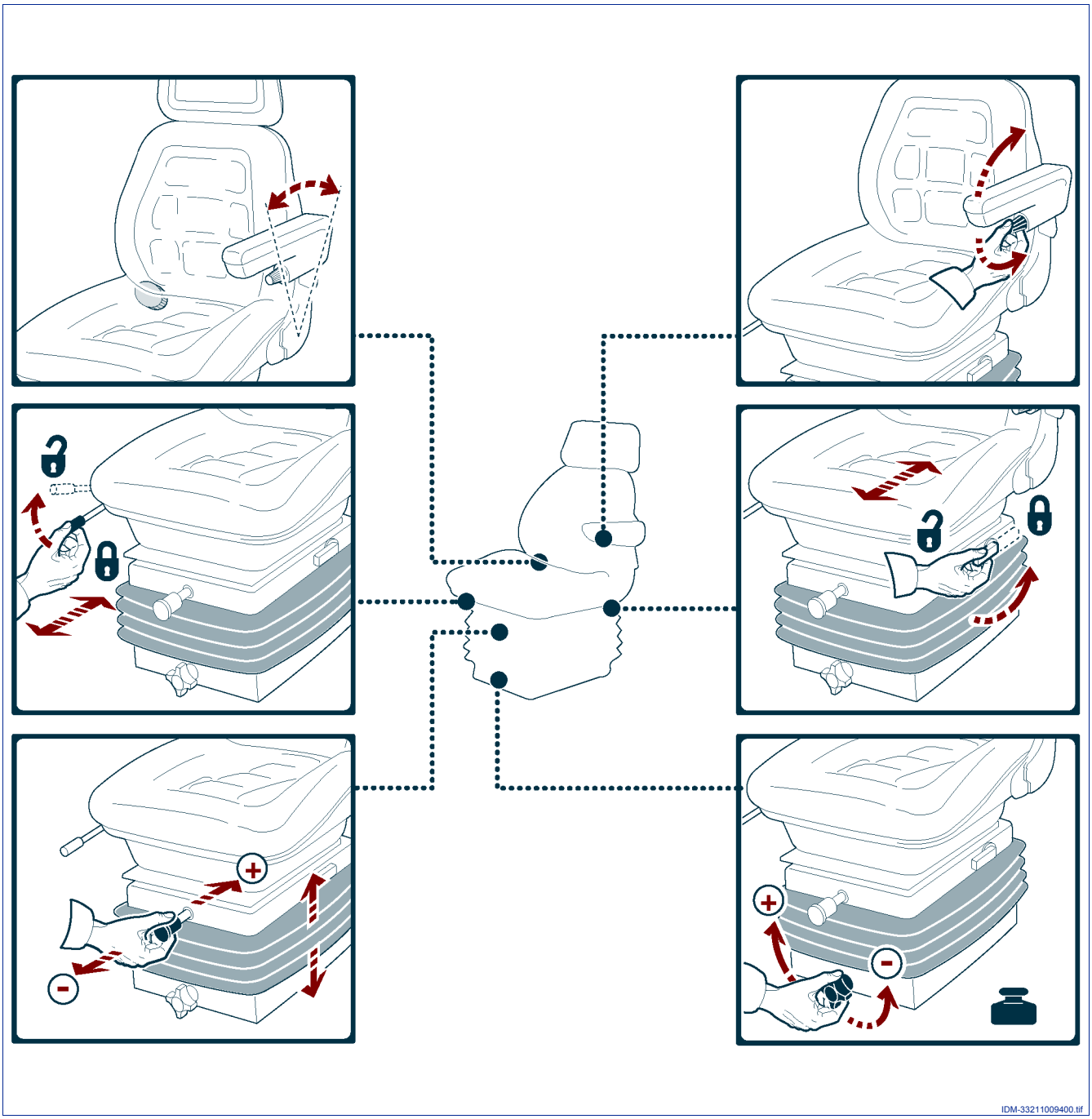
To adjust the seat, refer to the figures with the various positions.



Manual adjustment seat



Pneumatically-adjustable seat (the control panel must be switched on for this operation).



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SHOCK ABSORBER ADJUSTMENT

On delivery, the machine shock absorbers may be empty. Before operating the machine, refill the shock absorbers. This can be done in two different ways:

– with a manual pump (see page 21).
– with connection to the machine's hydraulic system (with the engine on) (see page 22).

Danger - Warning

All maintenance must be carried out by specially-trained staff in workshops which are adequately equipped.

SHOCK ABSORBER ADJUSTMENT (WITH A MANUAL PUMP)

Front shock absorbers

Important

Carry out this operation with an empty tank and with the spraying bar retracted.

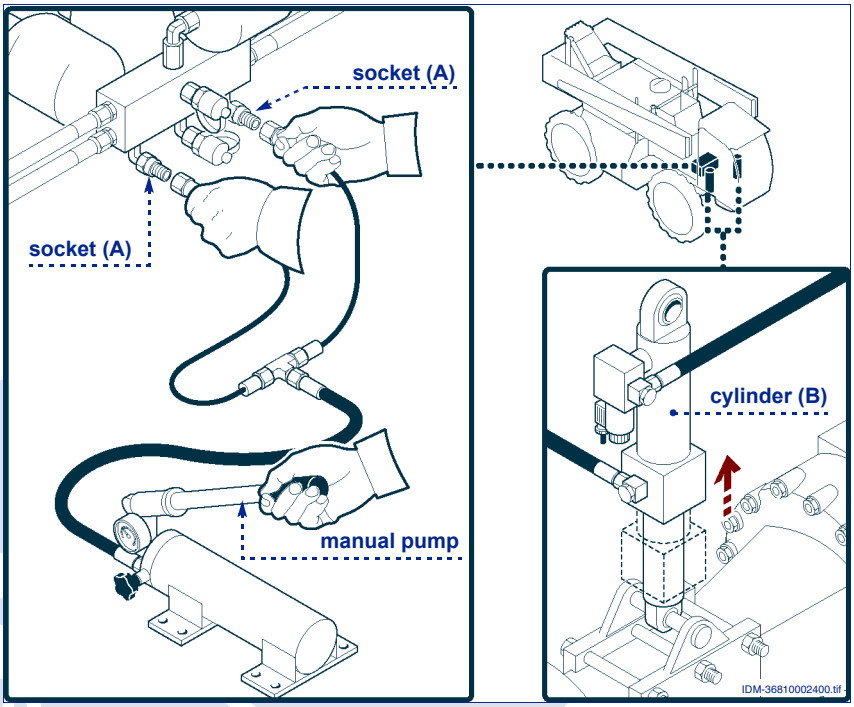
For this operation follow the procedure below.

1 - Connect the manual pump to the pressure taps **(A)** using the capillary hoses provided.

Caution - Precaution

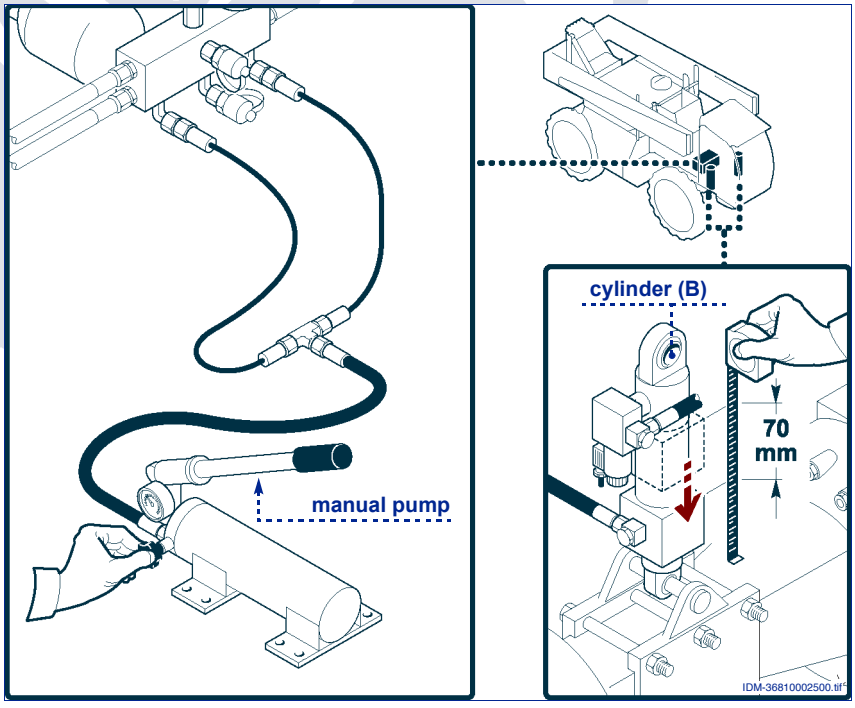
Screw the capillary hoses simultaneously to the pressure taps (A) to avoid any oil leaks.

2 - Inject hydraulic oil until the cylinders **(B)** are in the maximum extension position.



3 - Drain the oil from the pump until the cylinders **(B)** get 70 mm lower.

4 - Disconnect the hoses and the pump when the operation is complete.



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SHOCK ABSORBER ADJUSTMENT (WITH THE MACHINE'S HYDRAULIC SYSTEM)

Front shock absorbers

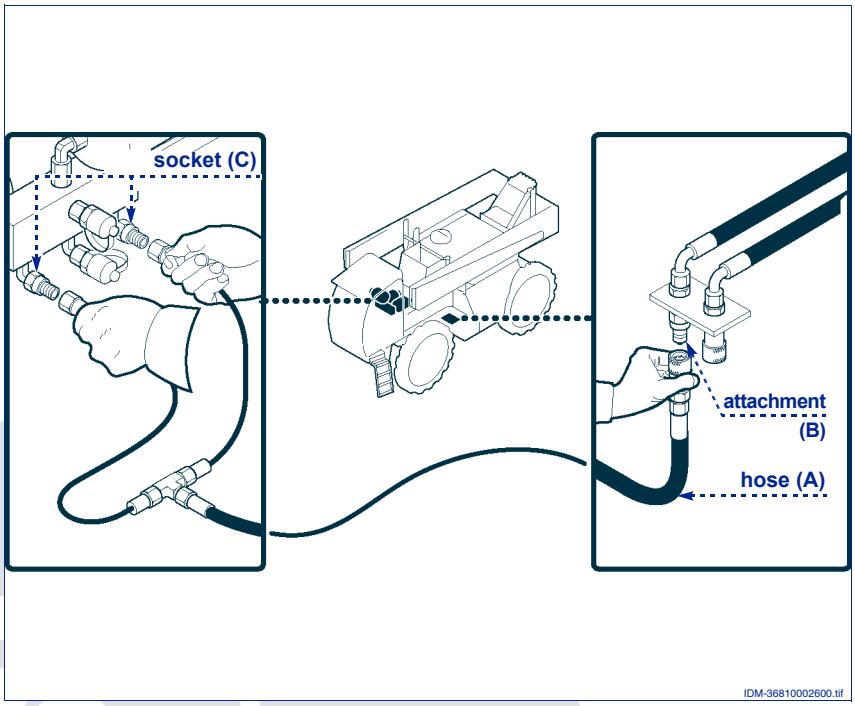
Important

Carry out this operation with an empty tank and with the spraying bar retracted.

For this operation follow the procedure below.

1 - Connect the hose **(A)** provided to the fast attachment **(B)**, replacing the hose for the movement of the step ladder.

2 - Connect the hose **(A)** to the pressure tap **(C)** using the capillary hoses provided.

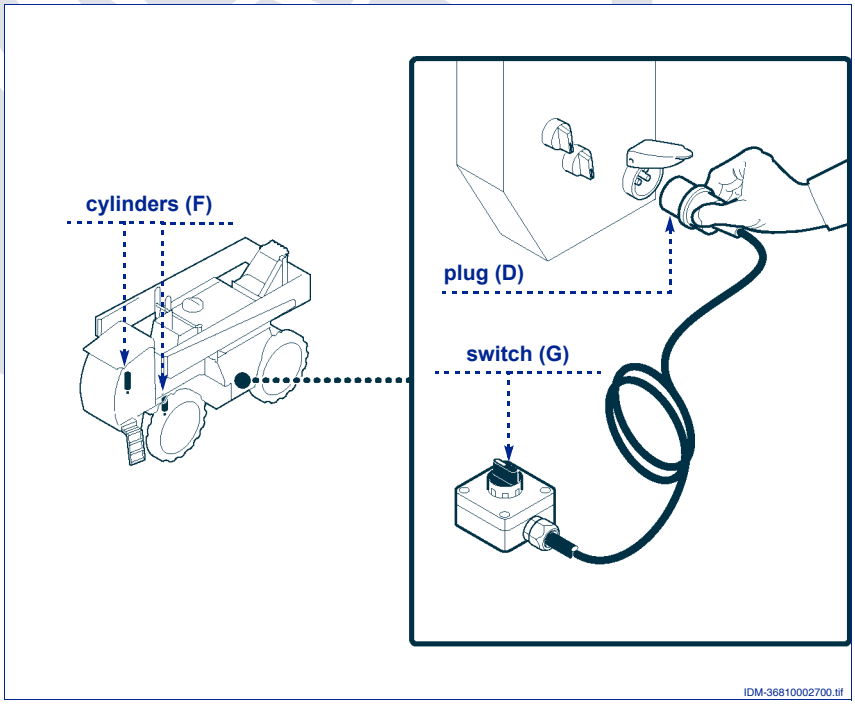


Caution - Precaution

Screw the capillary hoses simultaneously to the pressure taps (C) to avoid any oil leaks.

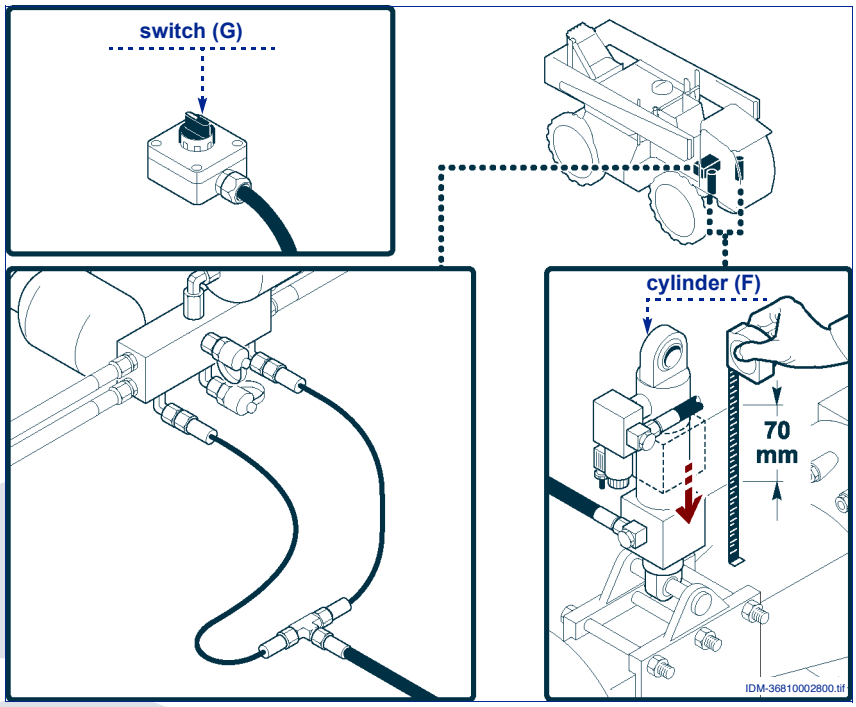
3 - Connect the plug **(D)**.

4 - Use switch **(G)**, to inject hydraulic oil until the cylinders **(F)** are in the maximum extension position.



5 - Use switch **(G)**, to drain hydraulic oil until the cylinders **(F)** are 70 mm lower.

6 - Disable and disconnect the hoses and the plug of the push-button panel once the operation has been completed.

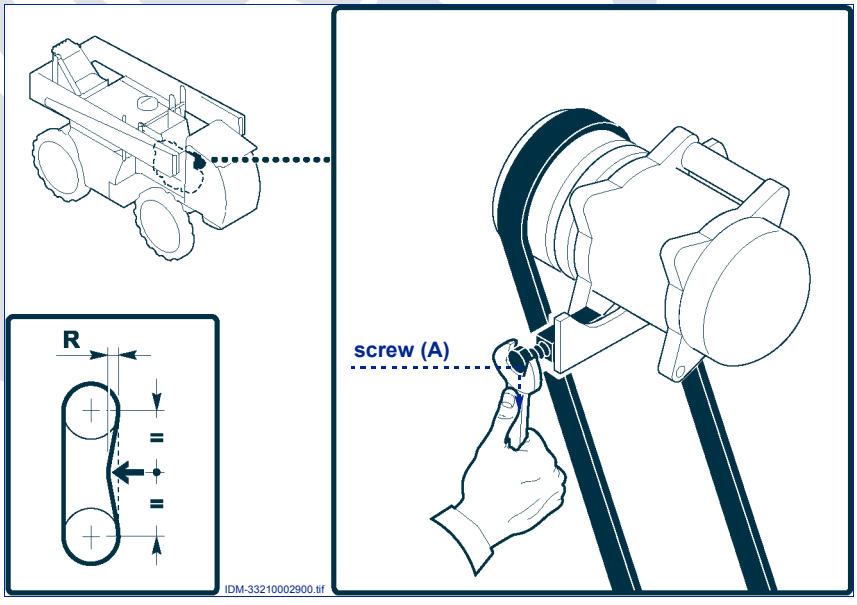


AIR CONDITIONING COMPRESSOR BELT ADJUSTMENT

Turn the screw **(A)** to adjust the tension of the belt.

Important

Check the tension as indicated in the figure. The resulting value (R) must be 10÷15 mm.



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USER INFORMATION

INSTRUCTIONS FOR USE AND OPERATION

Important

The incidence of accidents related to the use of the machine depends on multiple factors that are not always easy to prevent and control. Some accidents may depend on unforeseeable environmental factors; others are caused by the behaviours of the staff using the machine. Apart from being authorised and properly informed, if necessary, when using the machine for the first time, operators must simulate some manoeuvres in order to get familiar with controls and main functions. Use the machine exclusively for the purpose intended by the manufacturer. Do not tamper with any device to obtain a different performance. Before using the machine, make sure that the safety devices are correctly installed and in perfect working conditions. Apart from complying with these requirements, operators must apply all safety regulations in force and carefully read the description of the various controls and the instructions on how to operate the machine.

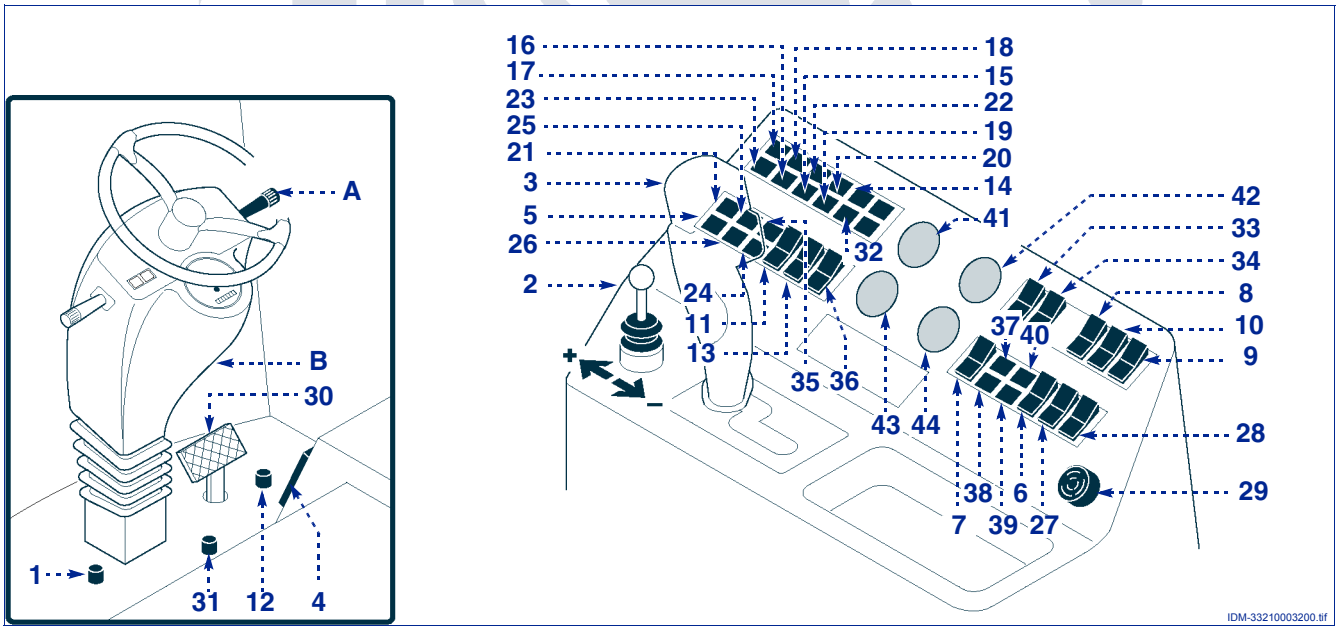
DESCRIPTION OF CONTROLS

All the controls used to operate and transfer the machine are located near the operator's seat in the cab. Below are the symbols, the position and the function of the controls.

Important

Some button controls have a safety device for preventing accidental operation. This safety device should be unlocked before using buttons.

CONTROL PANEL



Pos	Symb.	Name	Function	Symb.	Indication
1		Pedal button for water system distribution unit control.	Activates the water system. *Note: it is also connected to the steering system to commutate the four wheel drive to two wheel drive during the work phase .*		Press to activate. Press again to deactivate

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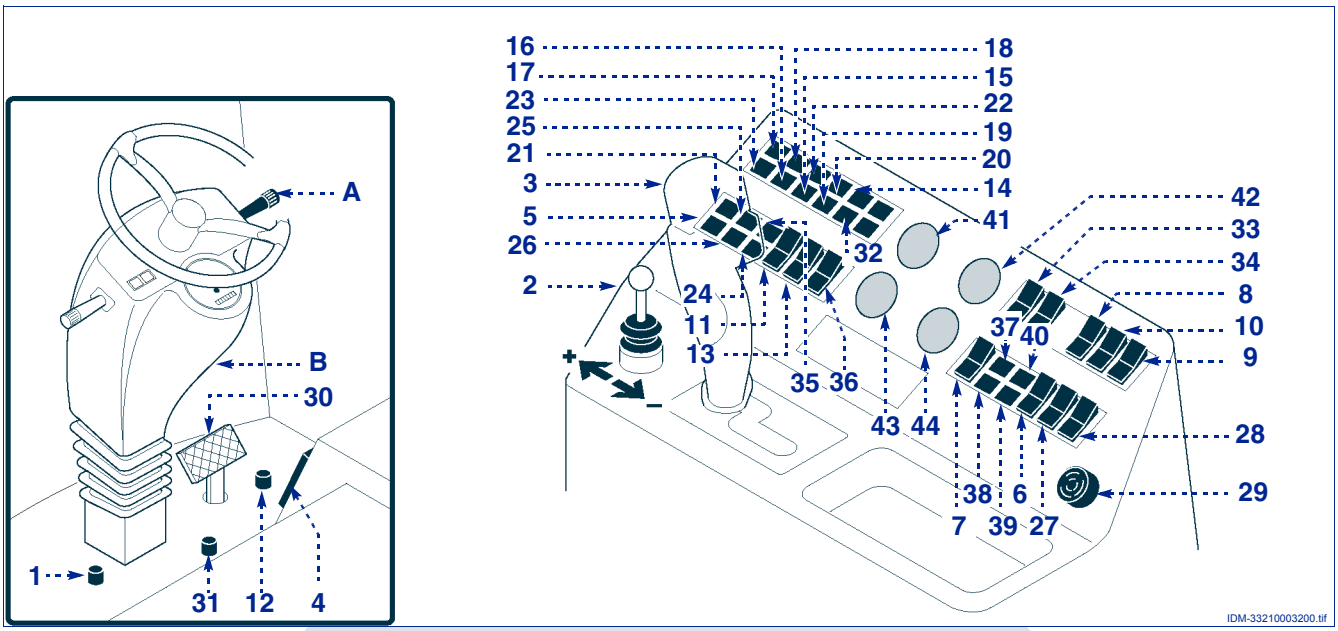
Pos	Symb.	Name	Function	Symb.	Indication
2		Accelerator lever	Accelerates the engine		Push the lever to accelerate. Pull the lever to decelerate. **Important** **The seat is provided with a sensor that detects the driver's presence. The accelerator lever is active only when the driver is sitting on his/her seat.**
3		Spraying bar hydraulic controls and machine handling lever.	The information on the various functions can be found beneath the heading "Forward motion and brake lever".		
4		Fuse box (no. 2).	Contains the fuses		
5		Yellow water system indicator light.	Indicates the activation of the water system pump.		On: pump activated. Off: pump deactivated.
6		Water system pump control switch.	Activates the water system pump.		Use to activate or deactivate the pump.
7		Steering lever control switch **(A)** (see page 28).	To activate the functions of the lever **(A)**. *Note: the fast gears cannot be used with the lever* **(A)** *activated.*		Release the safety catch and activate the lever functions. **Important** **Deactivate the control before road circulation begins.**
8		Front suspension locking switch	To lock the suspensions on the front axle		Use it to lock and unlock the suspensions on the front axle
9		Work control switch	Activates and deactivates the work controls		Release the safety catch and activate or deactivate the controls. **Important** **Deactivate the control before road circulation begins.**
10		Parking brake control switch	Activates and deactivates the parking brake		Release the safety catch and activate or deactivate the brake.
11		Mechanical speed gearbox switch	To select the slow or fast mechanical gear	 	Unlock the safety and engage the creep mechanical gear Unlock the safety device and engage the fast mechanical gear **Important** **Use the switch only when the machine is not operating**
12		Steering activating foot-control button	To activate the four wheel drive during the work phase.		Use to activate or deactivate the function
13		Ladder switch.	To open and close the ladder.		Use to open and close the ladder.
14		Yellow water pump indicator light.	Indicates the lack of oil in the spraying pump or the breakage of the diaphragms.		On: – oil level insufficient – diaphragms broken Off: – oil level ok – diaphragms intact.



Pos	Symb.	Name	Function	Symb.	Indication
15		Green direction indicator light.	Indicates that the direction indicator lights are on		On: indicator lights on. Off: indicator lights off.
16		Blue high-beam indicator light.	Indicates that the high beams are on.		On: high beams on. Off: high beams off.
17		Red alternator indicator light.	Indicates the alternator operation status.		On: the alternator is not charging the battery. Off: the alternator is charging the battery.
18		Red engine oil pressure indicator light.	Indicates the condition of the engine oil pressure.		On: insufficient pressure. Off: sufficient pressure.
19		Yellow engine preheating indicator light.	Indicates the preheating phase of the spark plugs		On: spark plug preheating in progress. Off: spark plug preheating completed (the engine can be started).
20		Red parking brake indicator light.	Indicates the activation of the parking brake.		On: brake activated. Off: brake deactivated.
21		Red hydraulic oil level indicator light.	Indicates the oil level (it is combined with the acoustic signal **(B)**).		On: oil level under minimum value. Off: oil level ok.
22		Red cooling liquid temperature indicator light.	Indicates the temperature of the liquid.		On: high temperature. Off: normal temperature.
23		Green position lights indicator light	Indicates that the position lights are on.		On: position lights on. Off: position lights off.
24		Mechanical gear orange pilot lamp	It signals the engagement of the mechanical gear (both slow and fast gear)		On: mechanical gear engaged Off: mechanical gear disengaged
25		Anti-skid device indicator light	Indicates the operation status of the anti-skid system		On: device activated. Off: device deactivated.

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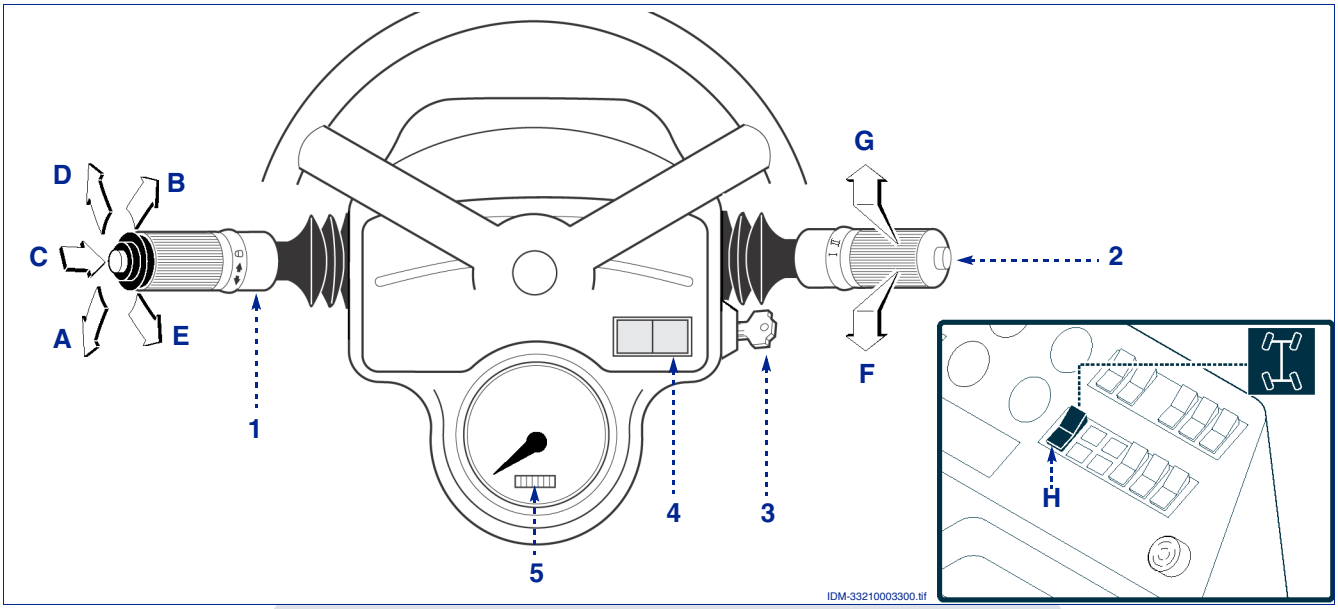
Pos	Symb.	Name	Function	Symb.	Indication
26		Fast hydraulic gear orange pilot lamp	It signals the engagement of the fast hydraulic gear		On: fast hydraulic gear engaged Off: fast hydraulic gear disengaged
27		Air hose switch.	To activate the air hose.		Use to activate or deactivate the air hose.
28		Air hose speed switch	To adjust the speed of the air hose fan		Use to increase the fan speed
					Use to decrease the fan speed
29		Electric lighter			Push to turn the electric lighter on
30		Service brake pedal	To activate the brake on the front wheels		Press to brake
31		Anti-skidding pedal button	Activates the anti-skid device		Press to activate Press again to deactivate
32		Fuel indicator light	Indicates a low fuel level		On: low fuel level
33		Work light switch	Turns on the work lights		Use to turn the lights on and off
34		Additional work lights switch	Turns on the work lights		Use to turn the lights on and off
35		Suction hose warning light	Indicates the activation of the suction hose		On: suction hose activated Off: suction hose deactivated
36		Flashing light switch	Turns on the flashing light		Use to turn the flashing light on and off
37		Four wheel drive indicator light	Indicates the four wheel drive mode		On: function activated Off: function deactivated
38		Four wheel steering mode for lateral movement indicator light	Indicates the four wheel steering mode for lateral movement has been activated		On: function activated Off: function deactivated
39		Warning light, front wheels aligned	Indicates that the front wheels follow the running direction		On: front wheels aligned Off: front wheels not aligned
40		Available			
41		Engine water temperature indicator	Indicates the temperature of the engine water		
42		Hydraulic oil temperature indicator	Indicates the temperature of the hydraulic oil		
43		Fuel level indicator	Indicates the fuel level		
44		Air hose fan rpm indicator	Indicates the number of fan revolutions		

CONTROL PANEL



Pos	Symb.	Name	Function	Symb.	Indication
1		Light control lever.	Position lights.		Turn the dial.
			Low beams.		Turn the dial.
			High beams. High beam flashing.		Lever in position **(A)**. Lever in position **(B)**.
			Acoustic signal.		Press in direction **(C)**.
			Right-hand direction indicator. Left-hand direction indicator.		Lever in position **(D)**. Lever in position **(E)**.
			Windshield wiper fluid button.		Press in direction **(C)**.

Pos	Symb.	Name	Function	Symb.	Indication
2		Steering and hydraulic gear lever	*Select the steering mode:* Two wheel drive.		Lever in central position.
			Four wheel drive		Lever in position **(F)**. *Note: the function can only be activated with switch **(H)** on four wheel drive*
			Four steering mode for lateral movement.		Lever in position **(G)**. *Note: the function can only be activated with switch **(H)** on four wheel drive*
			First hydraulic gear. Second hydraulic gear	 	Turn the dial.
3		Ignition key.	To start the engine.		Turn clockwise to preheat glow plugs. Turn clockwise again to start the engine.
4		Switch with (red indicator) light for emergency lights.	To activate the emergency lights.		Use to activate and deactivate the lights.
5		Revolution counter and hour counter.	Indicates the number of engine revolutions and the total work hours of the machine.		

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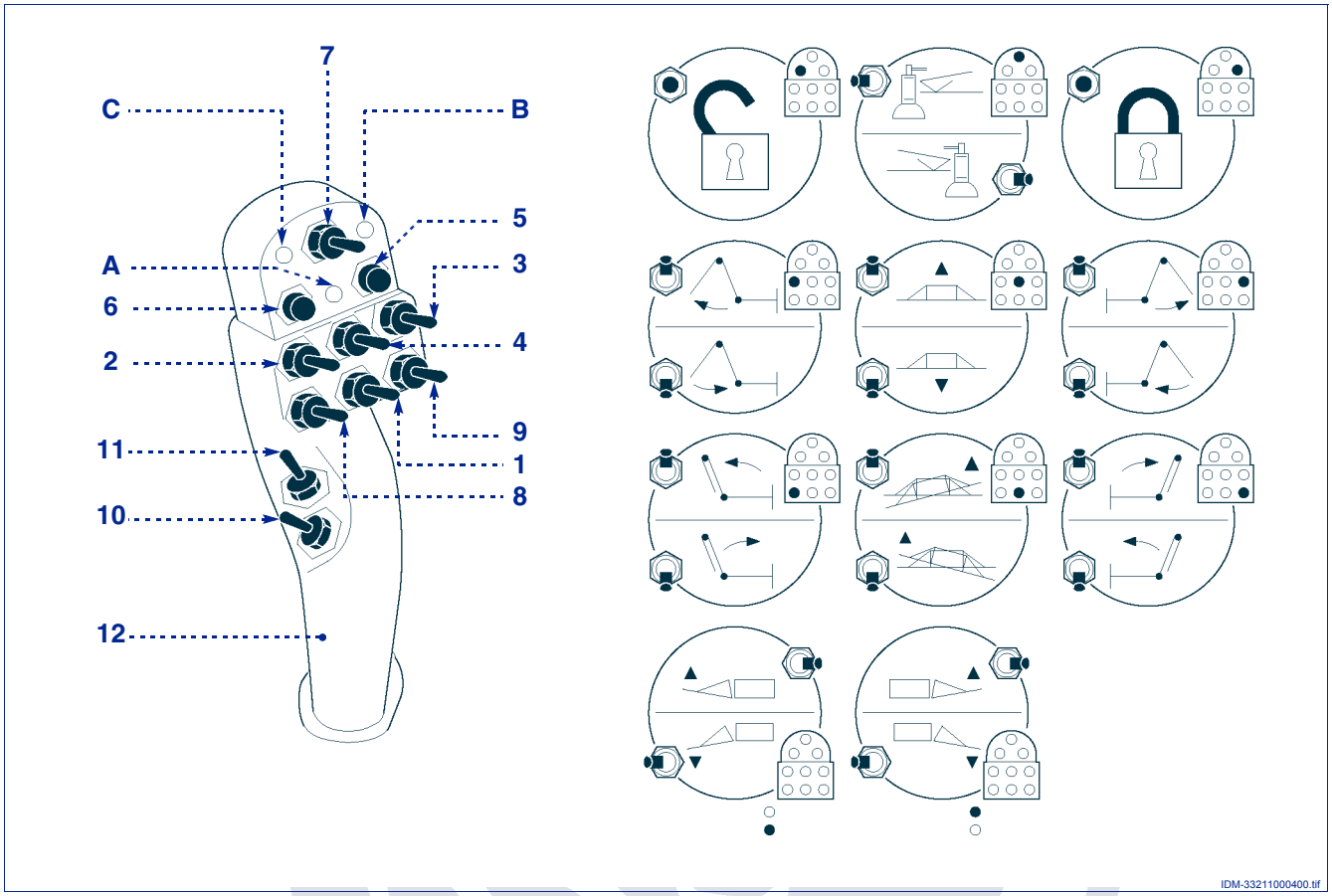
FORWARD MOTION AND BRAKE LEVER CONTROLS

The information below is only a part of the entire information available.

For further details, consult leaflet 13.



Pos	Symb.	Name	Function	Symb.	Indication
1		Bar levelling switch.	Controls the bar inclination to the right or left.		Use the switch to tilt the bar in the desired direction.
2		Left extension arm switch.	To extend and retract the extension arm.		Use the switch to extend or retract the left extension arm.
3		Right extension arm switch.	To extend and retract the extension arm.		Use the switch to extend or retract the right extension arm.
4		Bar height control switch.	Controls the lifting and lowering of the bar.		Use the switch to lift or lower the bar.
5		Bar balancing block button.	To block the bar balancing.		Press the button to block the bar. The green indicator light **(A)** on indicates that the balancing is blocked.

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Pos	Symb.	Name	Function	Symb.	Indication
6		Bar balancing release button.	To release the bar balancing.		Press the button to release the bar. The green indicator light **(A)** off indicates that the balancing is released.
7		Row marker switch.	To activate the row marker.		Use the switch to activate the right-hand row marker (the red indicator light **(B)** lights up) or the left-hand row marker (the red indicator light **(C)** lights up).
8		Left arm control switch.	To extend and retract the arm.		Use the switch to extend or retract the arm.
9		Right arm control switch.	To extend or retract the arm.		Use the switch to extend or retract the arm.
10		Left arm partial levelling switch.	To lift or lower the arm.		Use the switch to lift or lower the arm.
11		Right arm partial levelling switch.	To lift or lower the arm.		Use the switch to lift or lower the arm.
12		Control lever for machine movement.	To move the machine forward or in reverse.		Push the lever to move forward. Pull the lever to brake. **Important** **The engine cannot be started if the lever is not in central position.**

PROGRAMMING COMPUTER

The information regarding the controls and the computer programming is included in leaflet 13.

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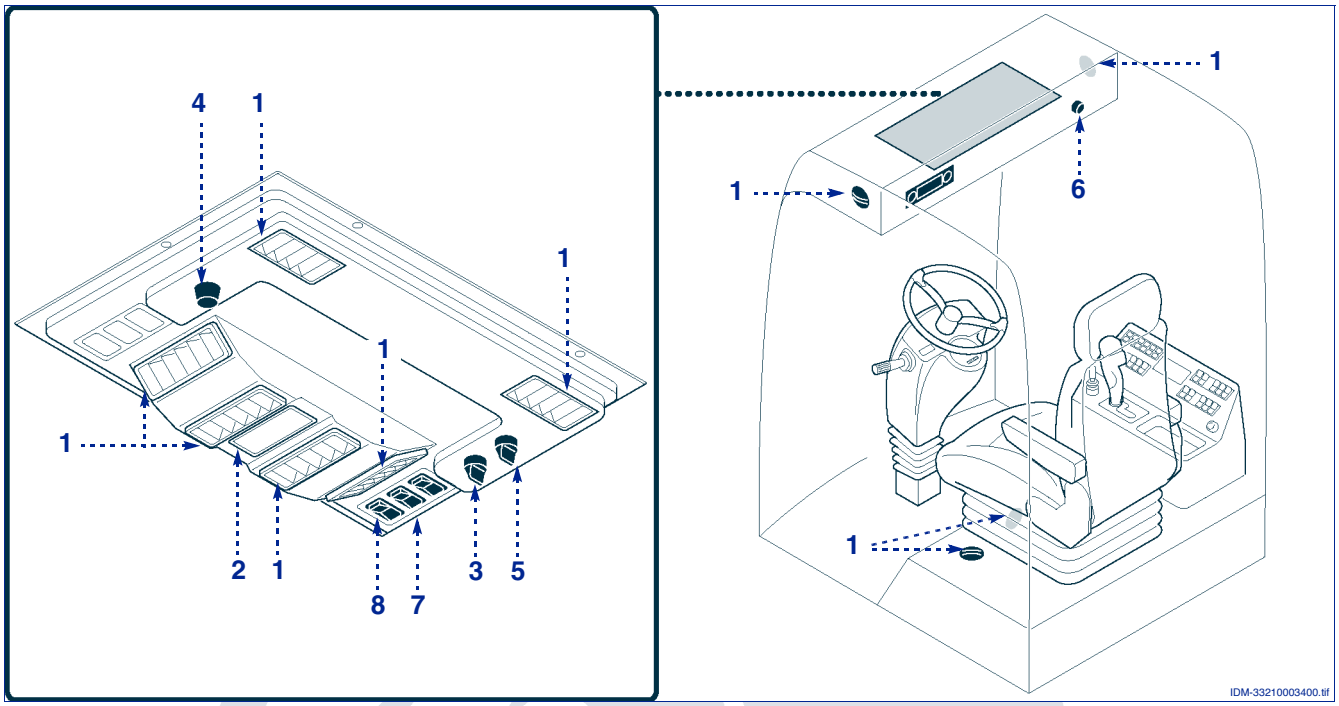
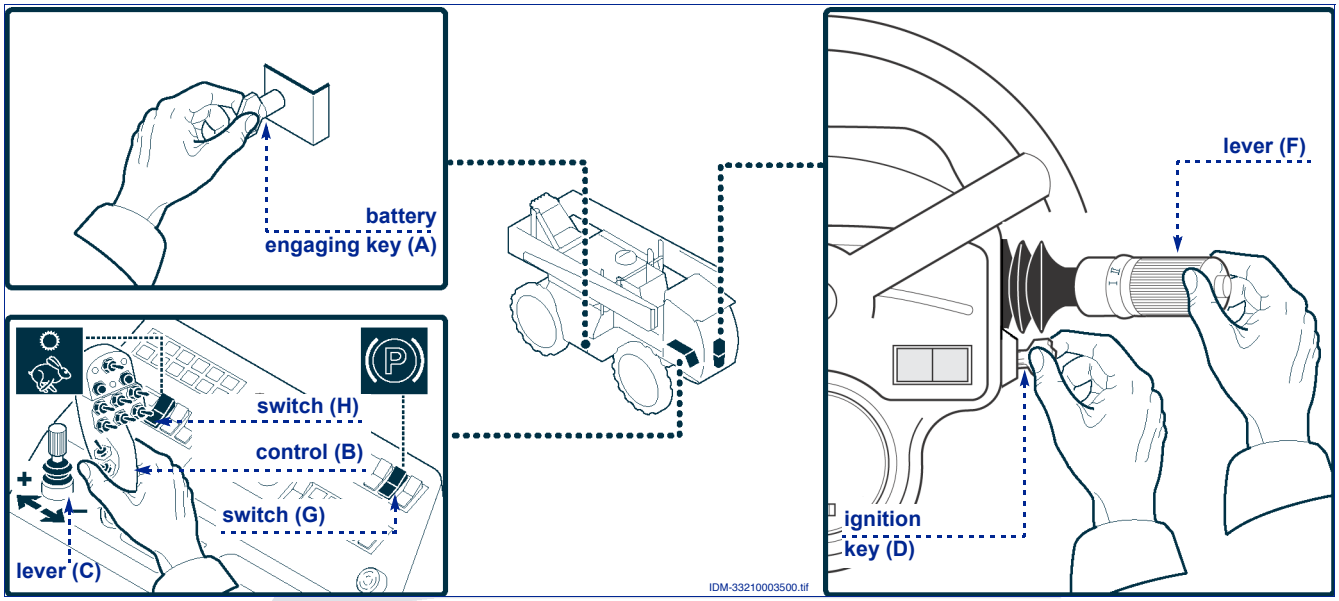
SERVICE AND INTERIOR CAB LIGHT CONTROLS



Pos	Symb.	Name	Function	Symb.	Indication
1		Adjustable air conditioning vents.	Circulates the air throughout the cab.		
2		Cab top light.	To light the operator's seat.		Use the switch **(A)** to turn the light on and off.
3		Air conditioning button	To activate the air conditioning.		Press to activate and deactivate the air conditioning
4		Thermostat.	To adjust the temperature of the air inside the cab.		Turn to increase or decrease the temperature.
5		Fan switch.	To activate the fan.		Turn to activate and deactivate the fan.
6		Rear-view mirror adjustment switch.	To adjust the position of the rear-view mirrors.		Use it to adjust the position of the rear-view mirrors.
7		Rear-view mirror heating switch	To activate the heating of the rear-view mirrors		Use to turn the mirror heating on and off
8		Windshield wiper switch	To activate the windshield wiper		Use to activate and deactivate the windshield wiper

MACHINE START-UP AND MOVEMENT



Important

After obtaining the necessary information, when using the machine for the first time, if necessary, the operator can simulate some manoeuvres to get used to the controls and their main functions, especially the starting and braking operations.

To start the machine follow the procedure below.

1 - Use key **(A)** to engage the batteries.

2 - Check that the control **(B)** is in the central position "0".

3 - Insert key **(D)** and turn clockwise (first section) to preheat glow plugs. Wait for 4÷5 seconds then turn the key clockwise again to start the engine.

4 - Push the lever **(C)** forward to increase the number of engine revolutions.

5 - Select the gear by means of lever **(F)** and switch **(H)**.

6 - Deactivate the parking brake with switch **(G)**.

7 - Use the control **(B)** to move the machine in one of the two directions.

Important

When the outside temperature is low and the engine cold, consult the engine operating manual before starting it.

Do not try to start the machine for more than 15 seconds. However, if the engine seems to be starting up, you may keep the ignition key turned for a maximum of 30 seconds.

Wait at least one minute before two consecutive engine start-up attempts; attempts should not be too frequent in order to preserve the battery.

In reverse gear and in high-risk conditions, the presence of a co-worker is recommended in order to signal dangers and obstacles that may not be visible from the operator's seat.

Important

Do not actuate the control too rapidly when inverting the machine direction to avoid damaging the hydrostatic components.

Caution - Precaution

Drive safely taking all the operating conditions into account. In particular, slow down on uneven ground. Pay special attention when going round bends in order not to impair the machine stability, especially when the tank is full.

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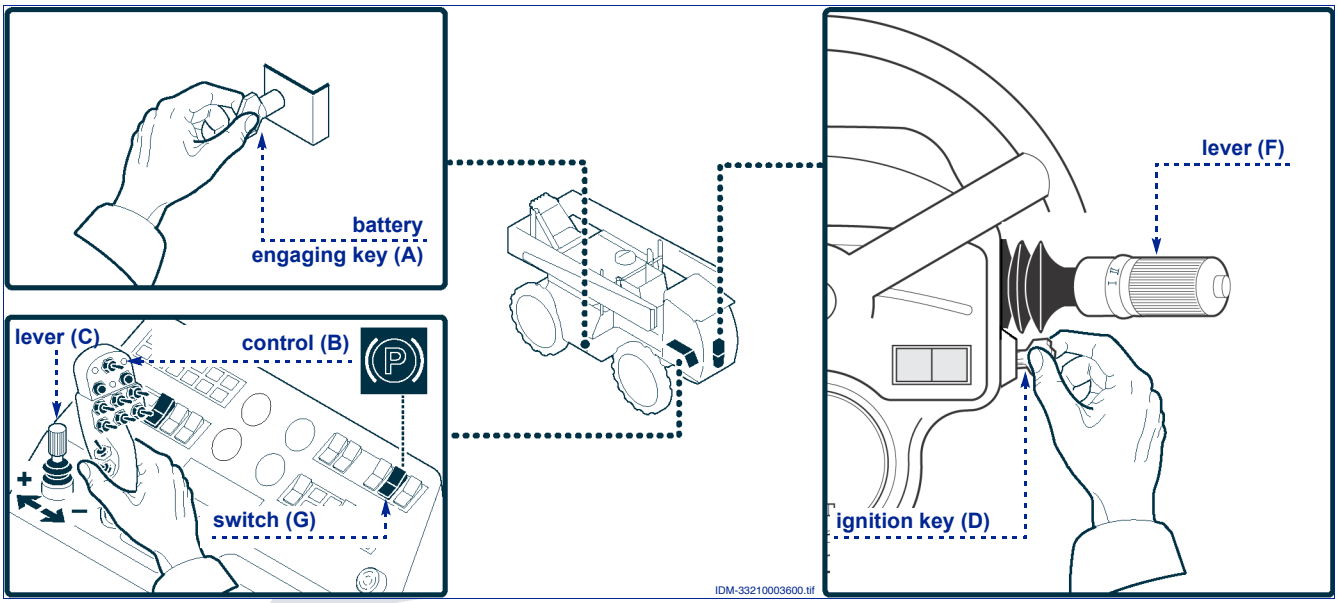
MACHINE STOP



For this operation follow the procedure below.

1 - Set the control **(B)** to the "0" position.

2 - Pull the lever **(C)** backwards to decrease the number of engine revolutions.

3 - Activate the parking brake with switch **(G)**.

4 - Turn the ignition key **(D)** to position "0".

5 - Remove the ignition key **(D)**.

6 - Use the key **(A)** to disengage the batteries.

Important

Park the machine in a suitable area, where it does not represent an obstacle or danger to circulation, where access is restricted to authorised staff, with all the necessary measures for safety purposes.

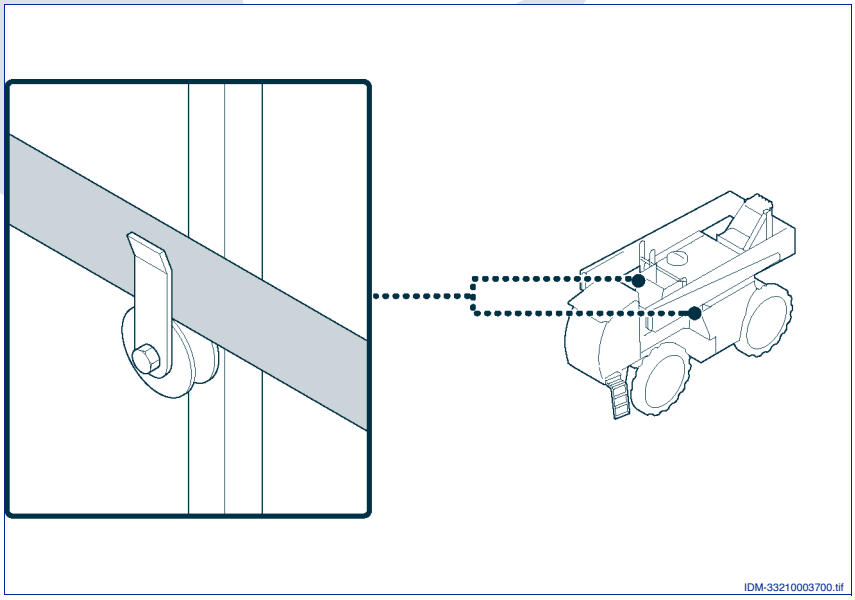
BAR RETRACTION STEPS

The bar retraction operations should be carried out very carefully, given the actual extension that the bars actually feature.

Important

The method and sequence of the bar extension and retraction are included in leaflet 9.

Before performing the bar retraction, lift the bar using the lifting device. Then lower the bar so that it rests correctly on the device provided to avoid any sudden extension of the arms.



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ROAD CIRCULATION

Road circulation is allowed for authorised machines.
Operators must comply with the requirements set forth by the regulations in force.
In any case, before road circulation begins:

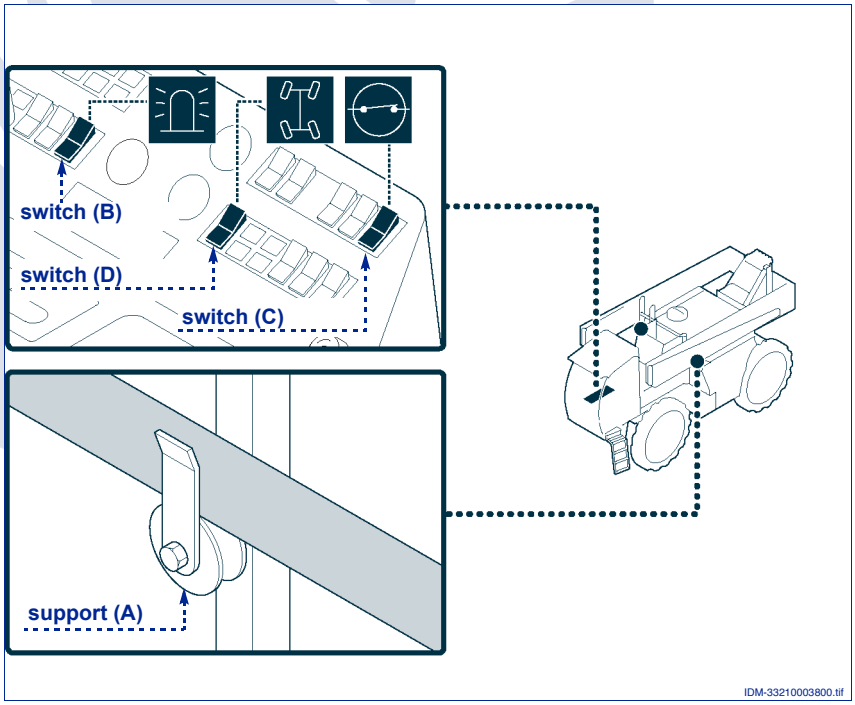
– block the parts which could cause sudden unexpected movements.
– check that the volume does not exceed the maximum allowable values.
– if necessary, arrange proper signalling.
– drain the tank completely.

Note: the road circulation may also take place when there is only water in the tank; in this case, the maximum speed is limited to 20 km/h (the 3rd and 4th fast gears cannot be used).

Caution - Precaution

For machines authorised to circulate on the roads with the tank full, the liquid must not be mixed with chemicals for spraying.

– Make sure that the bar is retracted correctly and placed on its supports **(A)**.
– Turn on the flashing light **(B)**.
– Ensure all the road signalling devices are working perfectly.
– Deactivate the operating controls **(C)**.
– Deactivate the four wheel drive **(D)**.



Danger - Warning

Circulating on the road without deactivating the operating controls and the “four wheel drive” mode can be extremely dangerous, due to the risk of the machine skidding and overturning, with serious consequences.

Road circulation involves being aware of and observing the rules stated in the manual entitled “Requirements for road circulation”.

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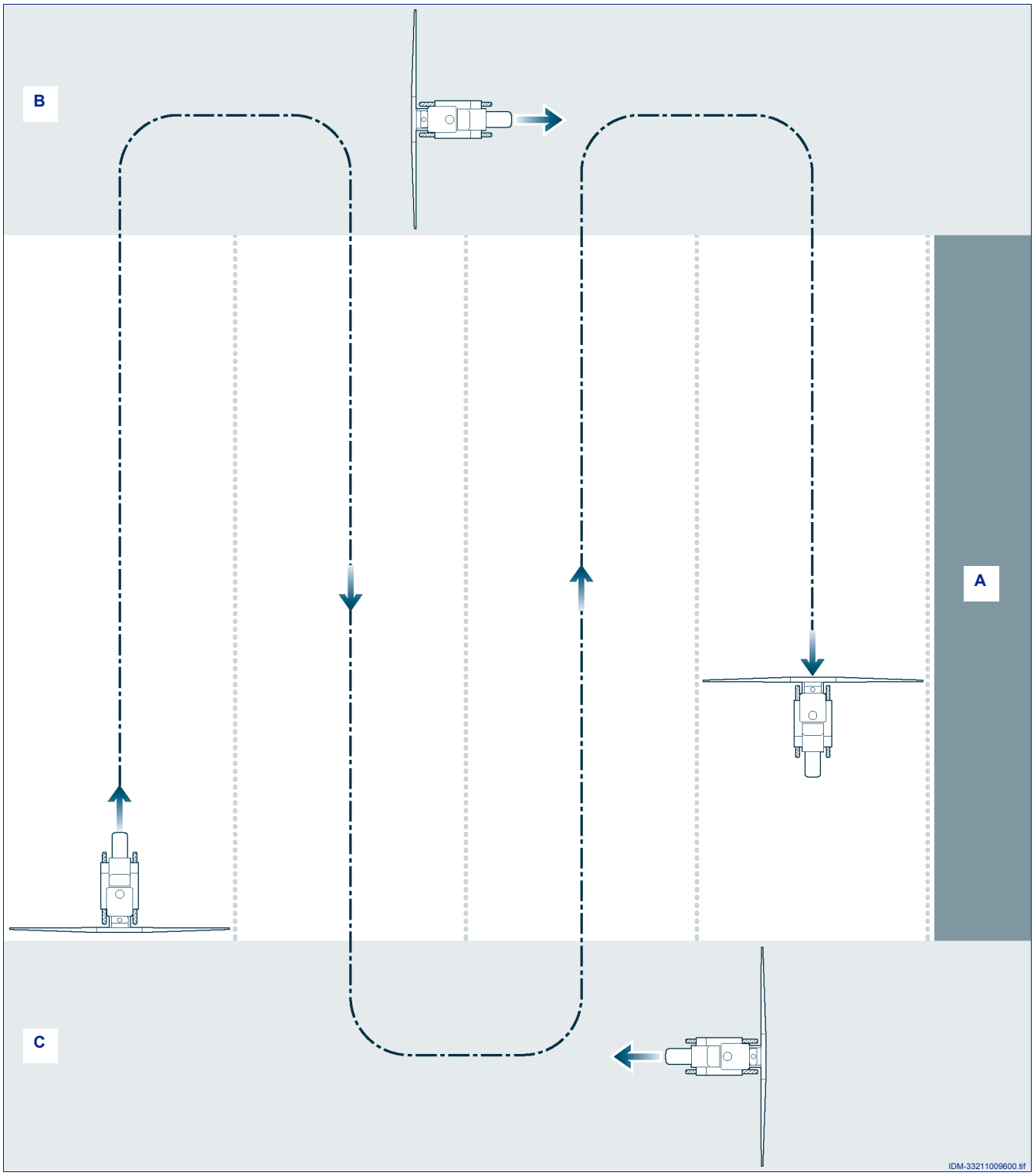
RECOMMENDATIONS FOR USE

To treat the surface to be sprayed, we recommend you follow the path indicated in the figure, keeping in mind that the row marker foam tank identifies the previous areas covered.

If the last time the machine covered a given area, the full length of the bar (area **(A)**) was not necessary, deactivate one or more sectors.
see leaflet 13

Cover the areas **(B-C)** to complete the treatment of the surface.



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EXTENDED MACHINE DOWNTIME

If the machine is not used for a long period of time, follow the procedure below:

1 - Perform the general cleaning.

2 - Grease the components provided with greaser.

3 - Disconnect the batteries.

4 - Store the machine in a well protected place with access reserved to authorised staff only.

5 - Apply an anti-rust treatment on all non-painted parts.

6 - Check all the machine components and replace them, if necessary.

7 - Clean the water system thoroughly.

8 - Drain the tanks containing the water and the product completely.

9 - Remove the water system filters.

RECOMMISSIONING

Before using the machine after a long period of inactivity, carefully check that the main components are working correctly.
In particular:

1 - Check the battery conditions.

2 - Check all levels (oil, water, fuel).

3 - Check that the main fixing screws are tightened.

4 - Check and replace worn or damaged parts.

5 - Lubricate all greasing points.

6 - Carry out all the necessary maintenance operations.

7 - Replace or, if necessary, change the filters of the water system.

8 - Check the general conditions of the hydraulic hoses.

9 - Check the efficiency of all safety devices.

10 - Carry out a general cleaning, with special care for the operator's seat and the control panel.

11 - Check the pressure of the tyres.

12 - Start the system, bring it to the maximum pressure level and check for any liquid leaks.

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MAINTENANCE INFORMATION

INSTRUCTIONS FOR MAINTENANCE

Before carrying out any maintenance work, activate all the safety devices and consider whether it may be necessary to provide appropriate information to the operators and the staff working near the machine. In particular, provide proper signs in the areas surrounding the machine and do not allow anyone to access any devices that, when activated, may cause unexpected dangerous conditions, resulting in damages to personal safety and health.

Danger - Warning

Always wear a gas mask before carrying out any intervention inside the main tank. However, any intervention must be carried out by authorized technicians.

Caution - Precaution

Unless otherwise expressly indicated, maintenance work must be carried out with the engine turned off, the ignition key not inserted and kept by the operator. The person in charge of the maintenance work must consider all the necessary measures to guarantee the safety of the persons participating in the work, in compliance with the requirements set forth by the regulations in force on safety in the workplace.

Important

Replace worn components with original spare parts. Use oils and greases recommended by the manufacturer. This will ensure the perfect operation of the machine and the safety level required. Do not dispose of polluting liquids, used parts and maintenance material into the environment. Disposal must be carried out in compliance with the current regulations in force.

TABLE OF MAINTENANCE WORK

Frequency	Component	Type of intervention	Action	Page
Each working day	Engine radiator water	Check the level		46
	Radiator	Check if the radiator fins are clogged	Clean with compressed air or a water jet	
	System oil	Check the level	Fill up with the same type of oil	46
	Engine oil	Check the level		46
	Engine intake filter cartridge	Check the efficiency	Clean with a water jet	63
	Wheel screws	Check how tight they are		
	Tyres	Check the pressure		
	Safety devices	Check the efficiency		8
	Machine	Clean and wash		39

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Frequency	Component	Type of intervention	Action	Page
Every 100 hours	Engine cooling fan belt	Check the tension	Refer to the engine's instruction manual	
	Air conditioning compressor belt	Check the tension	Adjust	23
	Components	Grease		40
Every 200 hours	Engine oil filter	Replace	Refer to the engine's instruction manual	
	Diesel filter	Replace	Refer to the engine's instruction manual	
	Water tank filter	Clean or replace		62
	Cab filter	Replace when unpleasant pesticide or herbicide odours are detected in the cab (maximum 36 months)		62
	Engine intake filter	Replace	Refer to the engine's instruction manual	63
Every 300 hours	Engine oil	Replace	Refer to the engine's instruction manual Carry out the first change after 100 hours	
Every 1000 hours	Hydraulic system oil	Replace		62
	Hydraulic system filters	Replace the cartridge		62
	Engine	Carry out the general check	Refer to the engine's instruction manual	

MACHINE CLEANING

At the end of every work day, the whole machine should be cleaned. To do so, wear all the individual protective devices (rubber gloves, boots, goggles, etc.) necessary to avoid contact with the product.

Caution - Precaution

Never leave any chemical residue on or in the machine. Do not dispose of the liquid in the environment; it could contaminate the rivers and water beds. Dispose of the product containers in accordance with the provisions set forth by the applicable laws in force. Do not leave the product and/or residue within children's reach.

To clean the machine, follow the procedure below.

1 - Clean the system and drain the residue.

2 - Clean the mixer and all hoses (see leaflet 5).

3 - Clean the exterior of the machine with a strong jet of pressurised water.

Caution - Precaution

Do not direct pressurised water jets towards electrical parts to avoid damaging them.

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FIRST USE

The machine is delivered by the manufacturer in operating condition after it has been run in for a few hours. When using the machine for the first times, the following indications must be complied with.

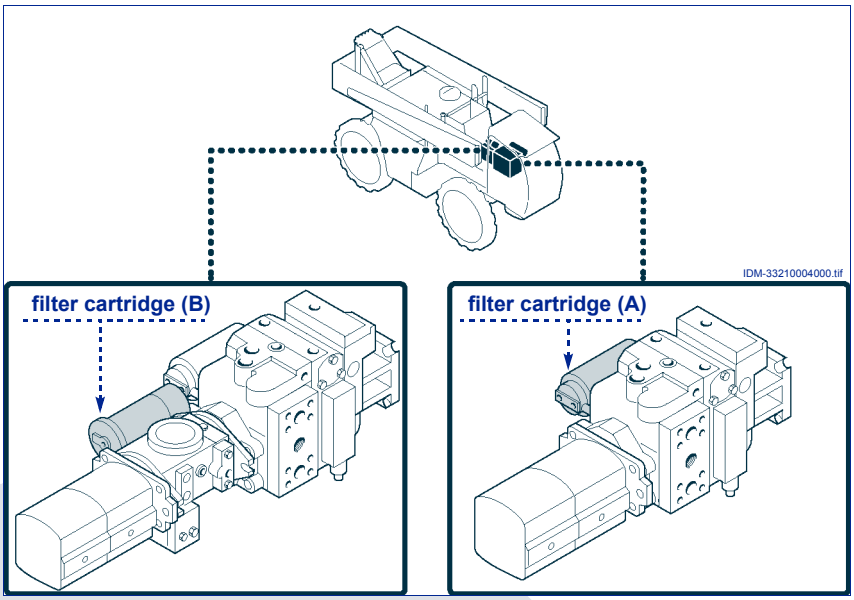
1 - After a cold start, run the engine at low speed for a few minutes.

2 - Refer to the engine's instruction manual to run the machine in properly.

3 - Do not run the engine at maximum speed for long periods of time.

4 - Check all levels frequently.

5 - Check that the hydraulic connections, bolts and nuts and wheel fixing screws are tightened.



After the first 100 hours, change the filter cartridge **(A)**.

After the first 300 hours, change the engine oil and the filter.

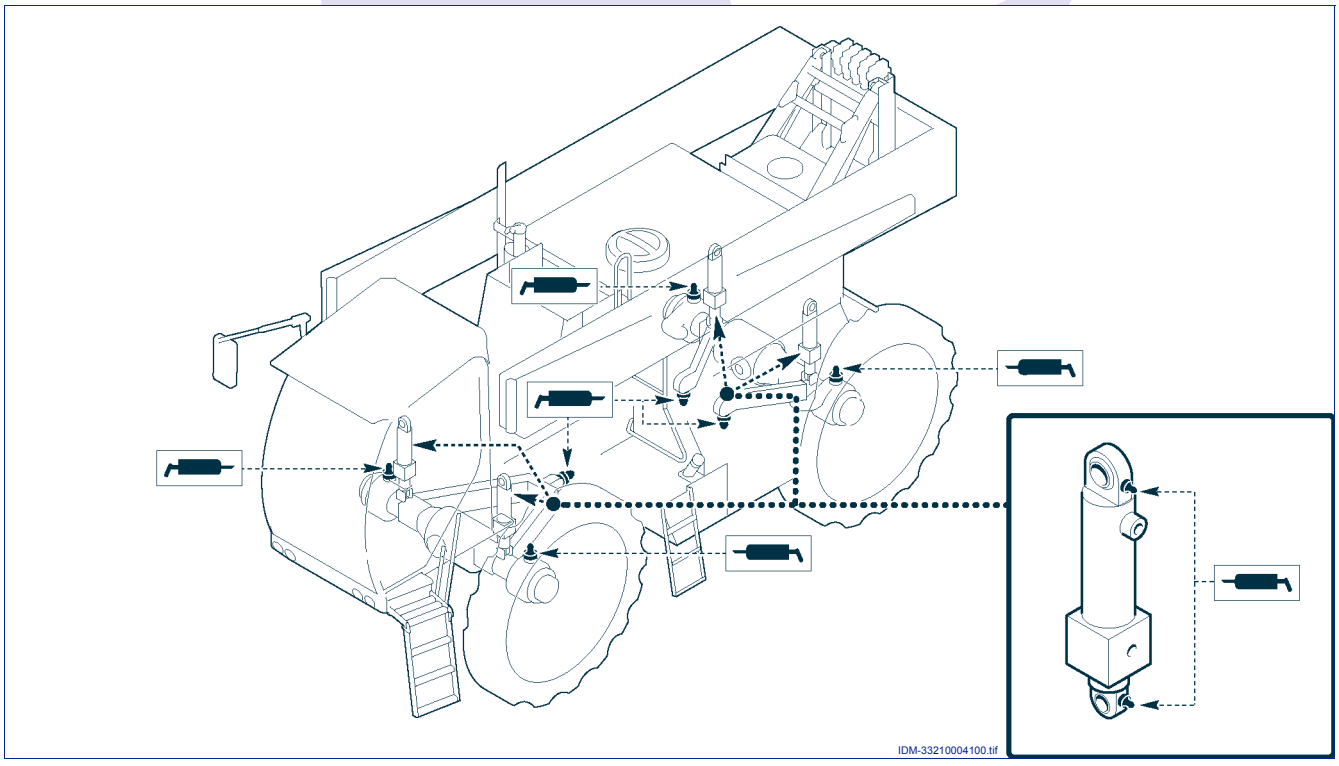
If the machine is provided with an air hose, change the filter **(B)** of the pump.

LUBRICATION POINTS DIAGRAM

Lubricate all greasing points and all sliding surfaces using waterproof grease, particularly after every high-pressure wash.

Important

To identify all the lubricating points of the operating units installed on the machine, see the relative leaflets.



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OIL COMPARISON TABLE

Lubricant table

Manufacturer	Parts to lubricate	Quantity	
		Litres	Kg
AGIP-SIGMA TURBO 15W/40	Crankcase sump and filters	15	13,3
	Only crankcase	14	12,4
	Pump AR250-280	2,6	2,3
	Pump IMOVILLI P246	3,6	3,2
AGIP-ARNICA 46	Hydraulic system and oil tank	220	191
	Hydraulic oil tank	200	174
MP 80W-90	Front bridge	10	9
	Front right epicyclic reduction unit	1	0,9
	Front left epicyclic reduction unit	1	0,9
	Rear bridge	10	9
	Rear right epicyclic reduction unit	1	0,9
	Rear left epicyclic reduction unit	1	0,9
	Gearbox	2	1,8
AGIP-GR MU EP/2	Grease lubrication	-	-
ANTIFREEZE	Cooling liquid	-	-

Hydraulic oil table

Manufacturer	Type
AGIP	ARNICA 46(1)
API	H S46
BP	ENERGOL SHF 46
CASTROL	HYSPIN AWH 46
ESSO	INVAROL EP 46
FIAT	AP 51
FINA	HYDRAN HW 46
IP	HYDRUS OIL H1 46
MOBIL	DTE 15
PERSIAN OIL	IDROL-T 46
ROL	LI 46 HIV
SHELL	TELLUS OIL T 46

1) When the outdoor temperatures are high (in excess of 35° C), we recommend you replace the hydraulic oil with the "ARNICA 68" or corresponding oil type.

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Filter table

Type	Code	Quantity
Hydrostatic transmission pump filter	BB32336501	1
Oil filter tank	BG012015	1
Oil filter tank cartridge	BG017923	1
Hydraulic system filter	BG002934	1
Hydraulic system filter cartridge	BG003686	1
Engine oil filter	BG002921	1
Diesel filter	BB32313200	1
Air-assisted pump filter	BB32399001	1
Cab air filter	BG002979	1
Engine air filter	BB32399046	1
Engine air filter safety device	BB32399047	1

FRONT SHOCK ABSORBER CHECK

The front shock absorbers can be checked in two ways:
– with a manual pump (see page 42);
– with connection to the machine's hydraulic system (with the engine on) (see page 44).

Danger - Warning

All maintenance must be carried out by specially-trained staff in workshops which are adequately equipped.

SHOCK ABSORBER CHECK (WITH A MANUAL PUMP)

Important

Carry out this operation with an empty tank and with the spraying bar retracted.

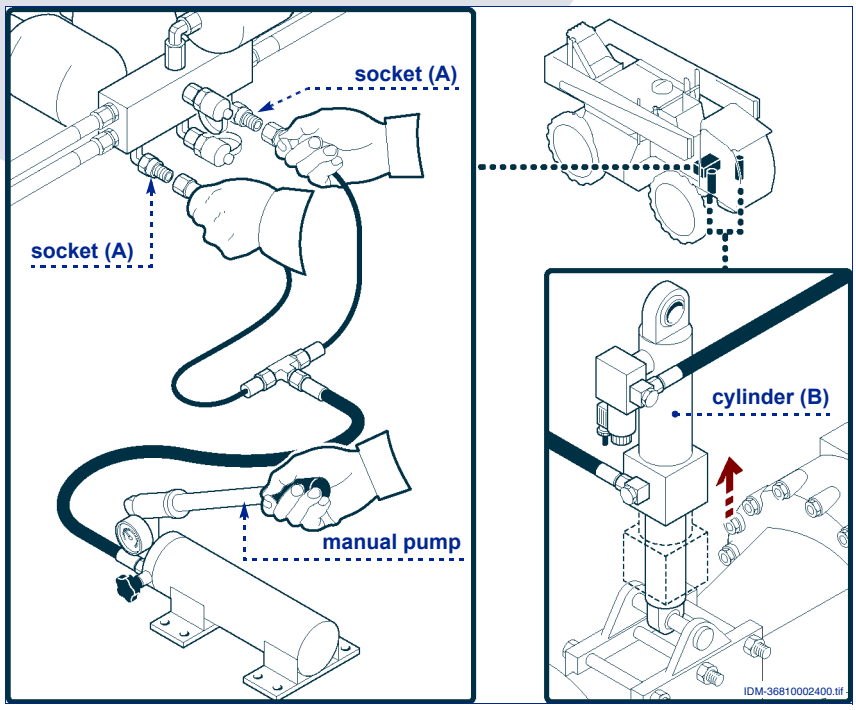
For this operation follow the procedure below.

1 - Connect the manual pump to the pressure taps **(A)** using the capillary hoses provided.

Caution - Precaution

Screw the capillary hoses simultaneously to the pressure taps (A) to avoid any oil leaks.

2 - Inject hydraulic oil until the cylinders **(B)** are in the maximum extension position.



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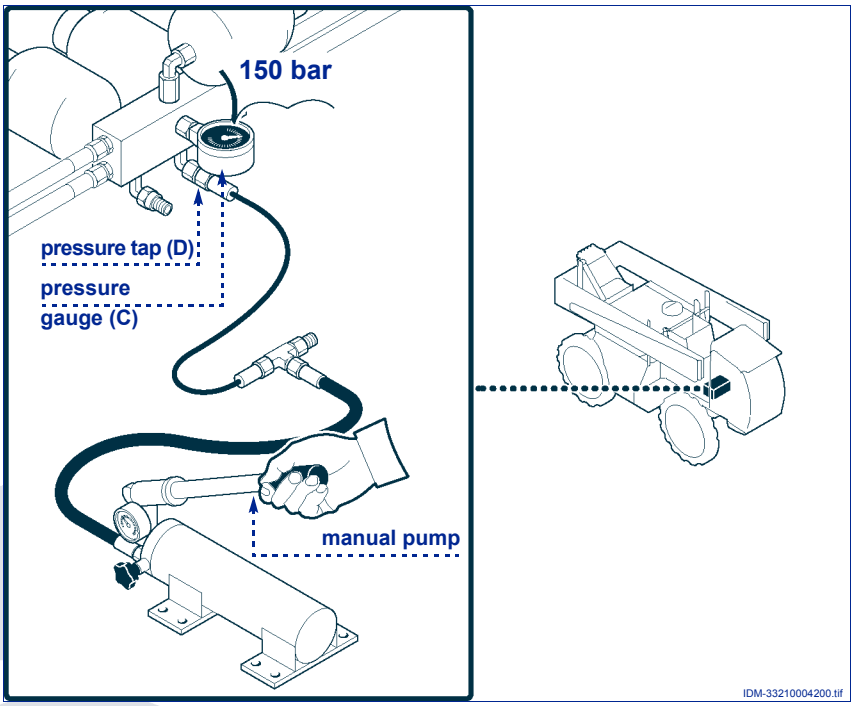
3 - Insert a pressure gauge **(C)** on the pressure tap.

4 - Connect the manual pump to pressure socket **(D)** by using the hoses supplied.

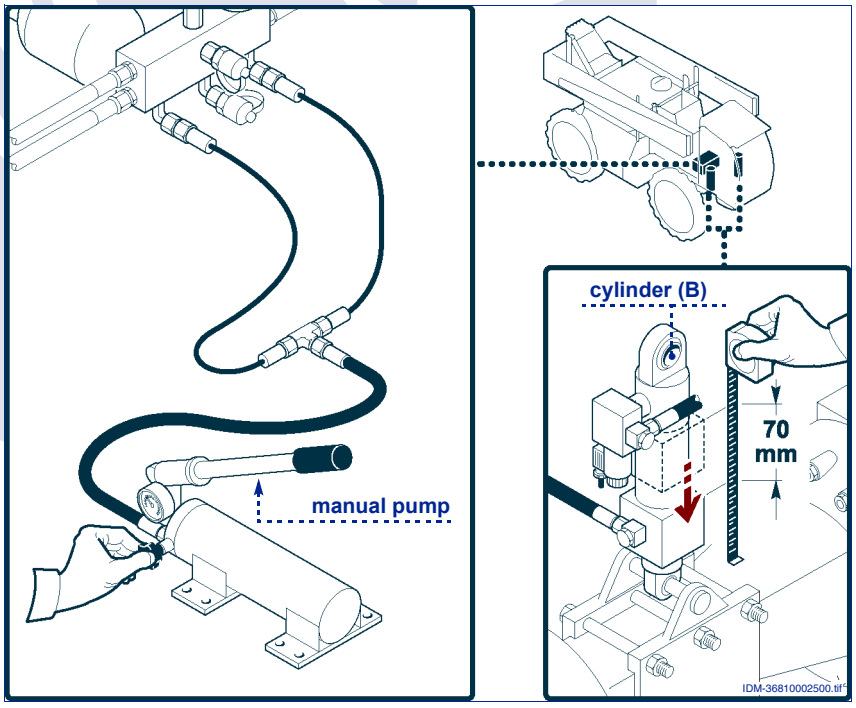
5 - If necessary, inject hydraulic oil until you reach a pressure of 150 bar.

6 - Disconnect the pump and remove the pressure gauge **(C)**.



7 - Drain the oil with the pump until the cylinders **(B)** get 70 mm lower.

8 - Disconnect the hoses and the pump when the operation is complete.



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SHOCK ABSORBER CHECK (WITH THE MACHINE'S HYDRAULIC SYSTEM)

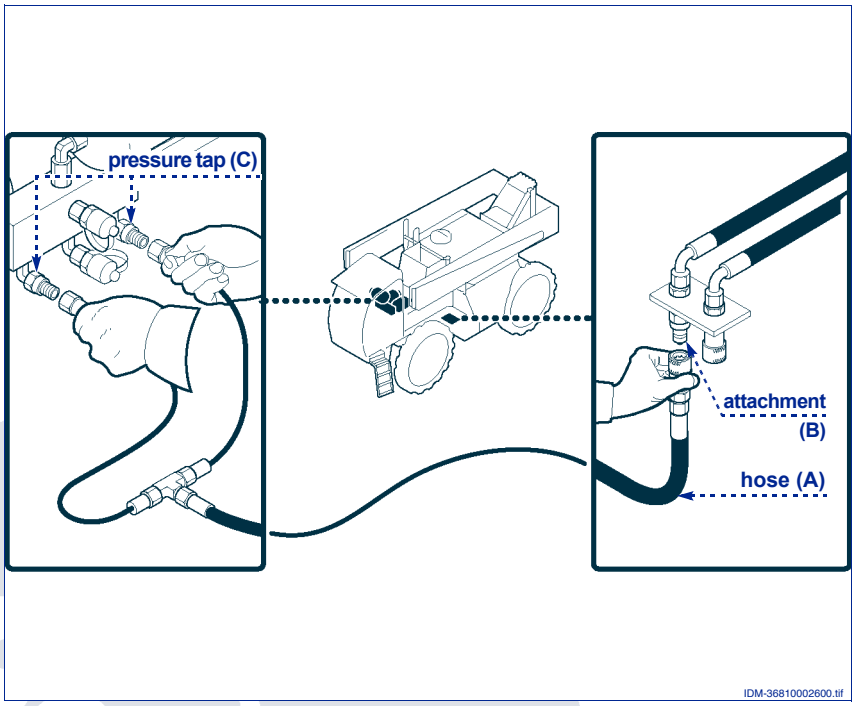
Important

Carry out this operation with an empty tank and with the spraying bar retracted.

For this operation follow the procedure below.

1 - Connect the hose **(A)** provided to the fast attachment **(B)**, replacing the hose for the movement of the step ladder.

2 - Connect the hose **(A)** to the pressure tap **(C)** using the capillary hoses provided.

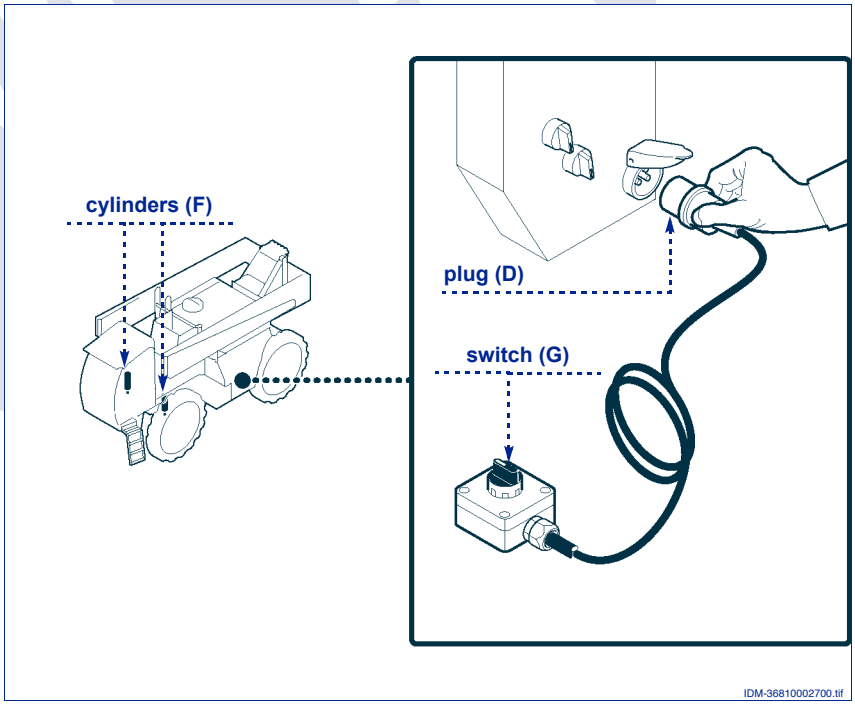


Caution - Precaution

Screw the capillary hoses simultaneously to the pressure taps (C) to avoid any oil leaks.

3 - Connect the plug **(D)**.

4 - Use switch **(G)**, to inject hydraulic oil until the cylinders **(F)** are in the maximum extension position.

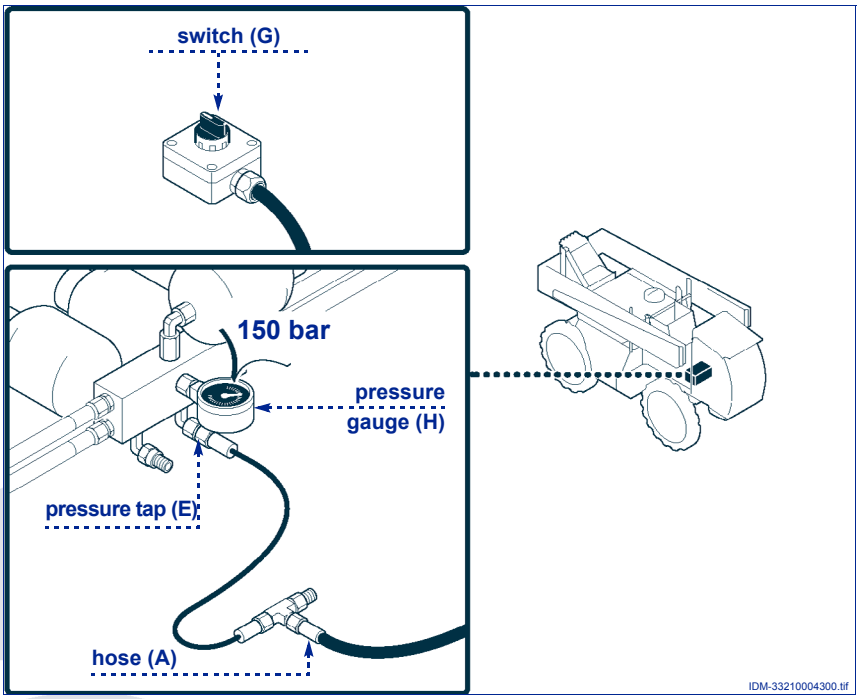


5 - Insert a pressure gauge **(H)** on the pressure tap.

6 - Connect the hose **(A)** to the pressure tap **(E)** using the capillary hoses provided.

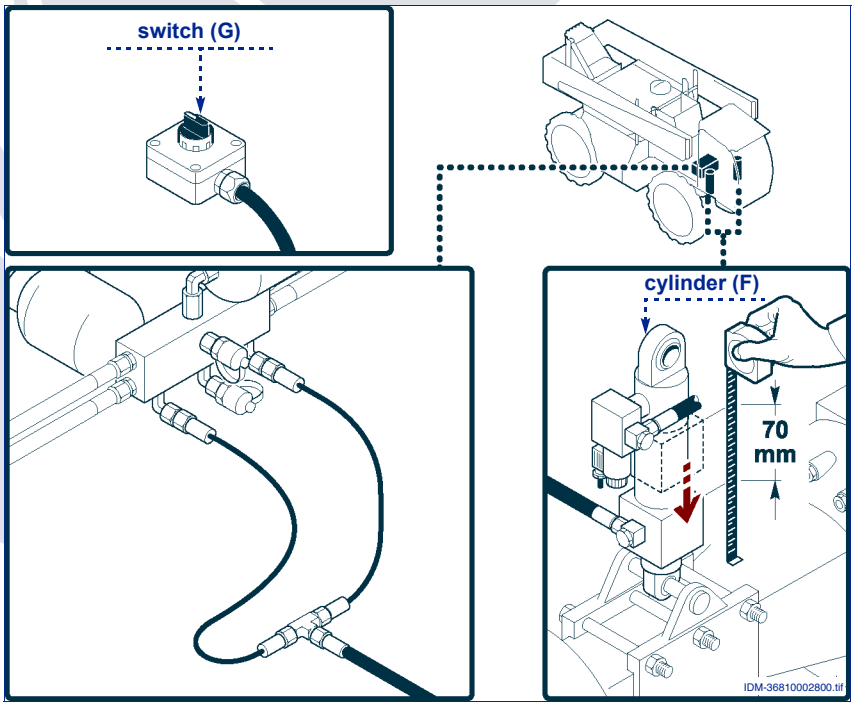
7 - Use switch **(G)**, to inject hydraulic oil until you reach a pressure of 150 bar.

8 - Disable and disconnect the hoses and the pressure gauge **(H)** when the operation has been completed.



9 - Use switch **(G)**, to drain hydraulic oil until the cylinders **(F)** are 70 mm lower.

10 - Disable and disconnect the hoses and the plug of the push-button panel once the operation has been completed.



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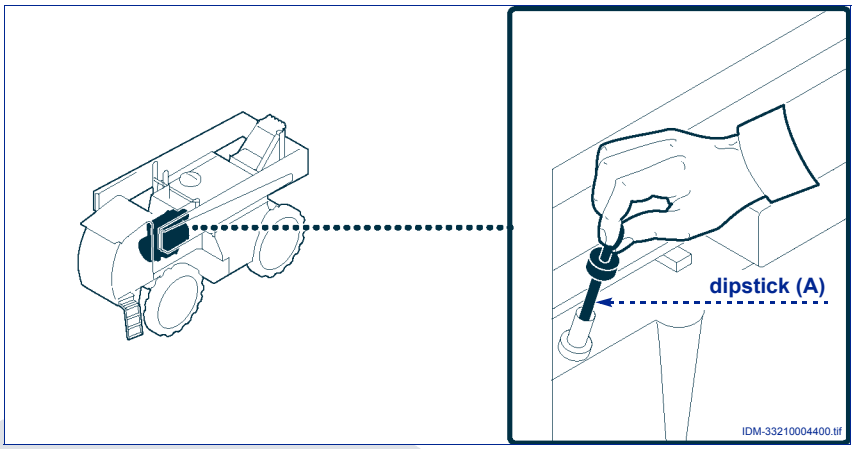
ENGINE OIL LEVEL CHECK

Pull out the dipstick **(A)** and check the oil level; if necessary, fill up.

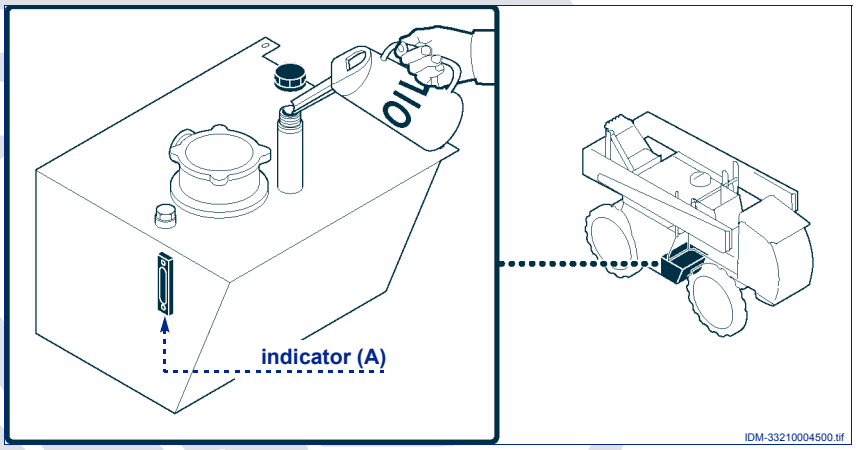


Important

This operation must be performed when the machine is perfectly level and the engine is cold.

HYDRAULIC OIL LEVEL CHECK

Check the oil level by means of the indicator **(A)** and re-fill, if necessary.

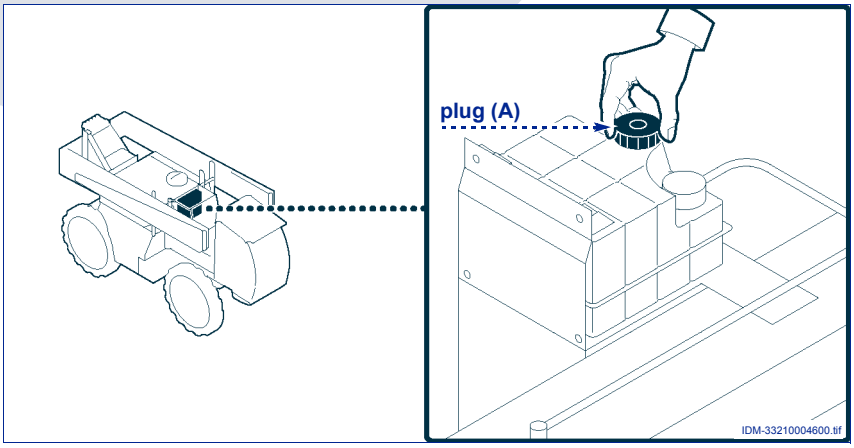


RADIATOR COOLING FLUID LEVEL CHECK

Important

The radiator must be maintained at the correct level with a mixture of water and anti-frost fluid for protection purposes. Check the concentration of the mixture with a suitable device at least once a year.

Remove plug **(A)** to check the liquid level inside the expansion tank. Top up, if required.



Danger - Warning

Before removing the expansion tank plug, wait until the temperature of the refrigerant drops below 60°C.

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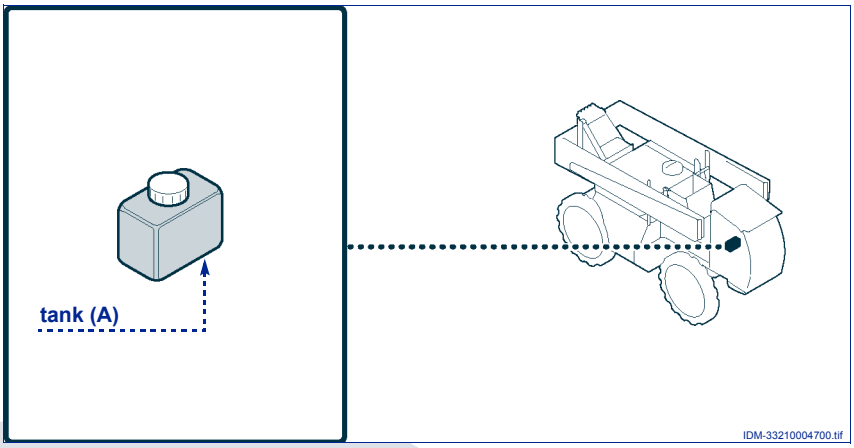
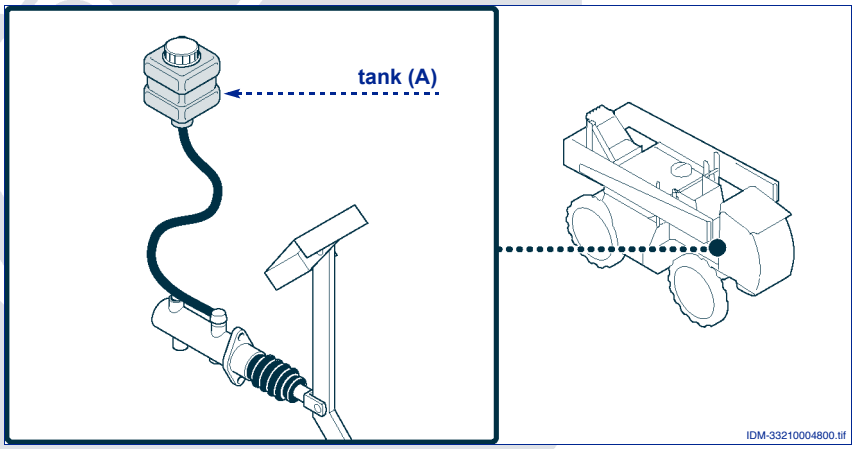
WINDSHIELD WIPER FLUID LEVEL CHECK

Regularly check, and if necessary top up the windshield wiper fluid in the tank **(A)**.



SERVICE BRAKE OIL LEVEL CHECK

Regularly check, and if necessary top up the oil level in the tank **(A)**. Make sure there is no air in the braking circuit.



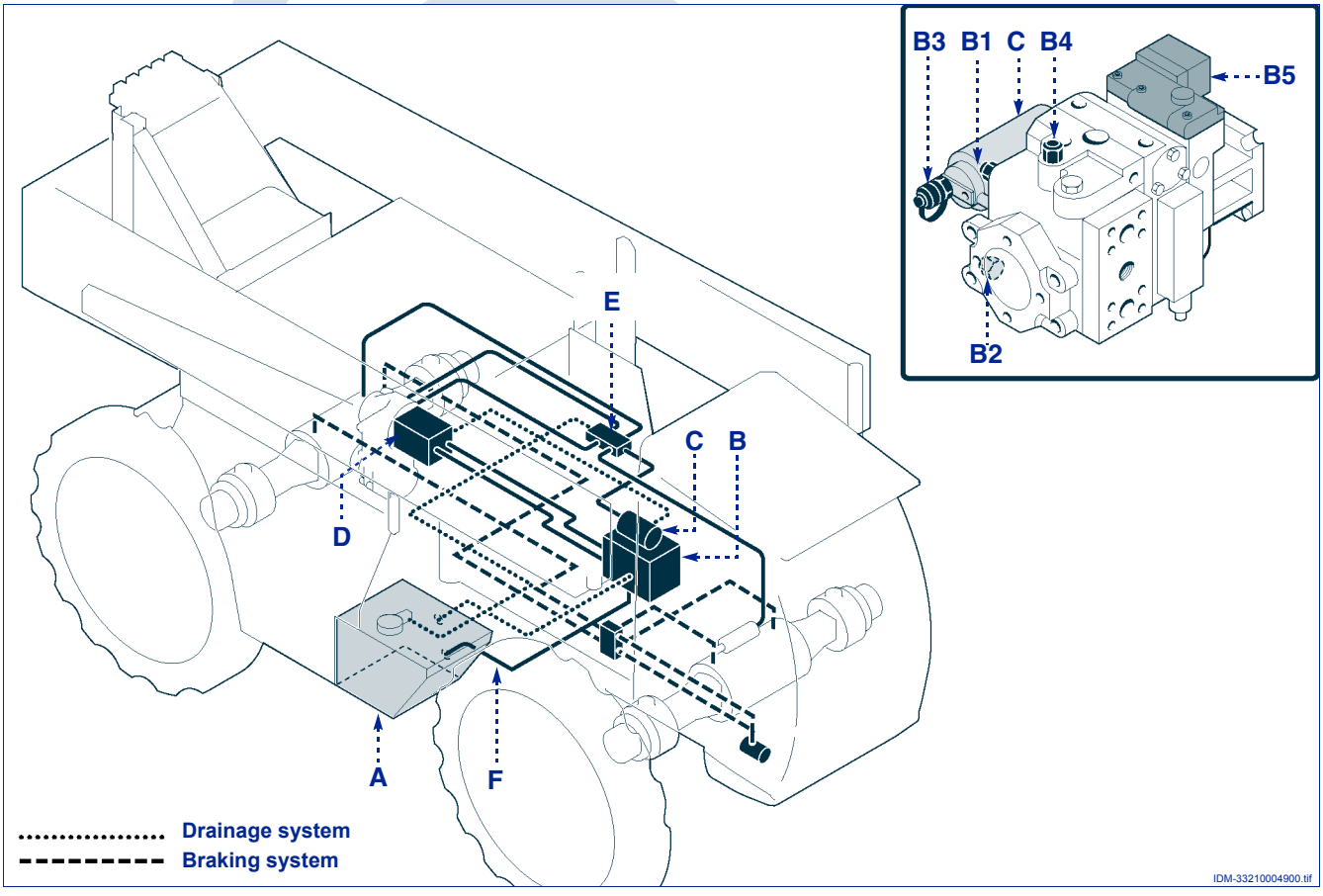
MAINTENANCE OF HYDRAULIC SYSTEMS

The operation of the main components and the spraying of the product are powered by hydraulic systems which, because of their complexity, have been divided into operating functions. Functional diagrams and a list of the main components are provided for each function.
For detailed information, see the corresponding paragraphs.

- Hydrostatic transmission system (with service brake) (see page 48).
- Shock absorber system (see page 49).
- Centrifugal pump and spraying pump system (see page 50).
- Power steering system (see page 51).
- Bar lifting, balancing and suspension system (see page 52).
- Fan system of the "Air Assisted Kit" (see page 53).
- Use of systems (see page 54).

HYDROSTATIC TRANSMISSION SYSTEM

Machine motion is allowed by hydraulic motor **(D)** that activates the four wheels. It is powered by pump **(B)** that is installed on the endothermic motor.
The oil for motor activation is contained in the tank **(A)**.



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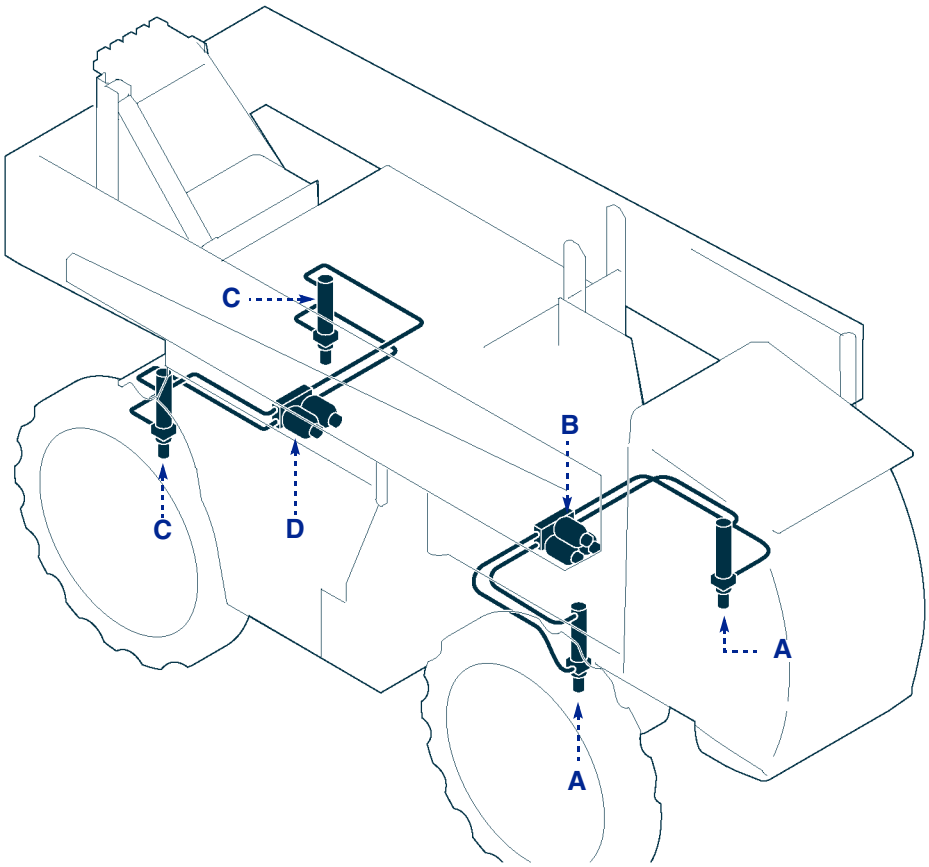
Legend

A - Oil tank.	**B3 -** Supply pressure control.	**D -** Hydraulic motor
B - Hydrostatic pump SAUER-90R100.	**B4 -** Max. pressure supply valve (32 bar).	**E -** Solenoid valve block.
B1 - Max. pressure valve in reverse (480 bar).	**B5 -** Servo control.	**F -** Intake hose.
B2 - Max. pressure valve in forward motion (480 bar).	**C -** Filter.	

SHOCK ABSORBER SYSTEM

The hydraulic jacks of the front shock absorbers **(A)** are controlled by unit **(B)**.

The hydraulic jacks of rear suspensions **(C)** are controlled by unit **(D)**.



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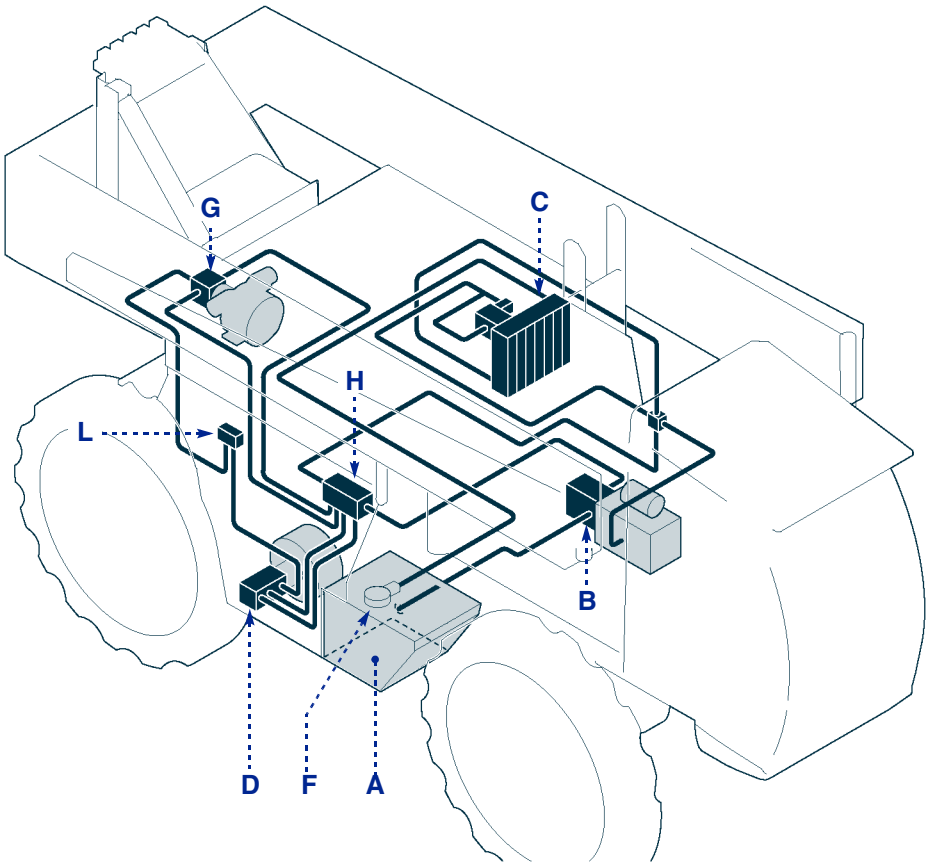
Legend

A - Front shock absorber jack	**D -** Block manifold.
B - Block manifold.	
C - Rear shock absorber jack.	

CENTRIFUGAL PUMP AND SPRAYING PUMP SYSTEMS

The activation of the two pumps (spraying and self-priming) is controlled by two hydraulic motors **(D-G)** which are powered by the pump **(B)**.

The oil for engine activation is contained in the tank **(A)**.



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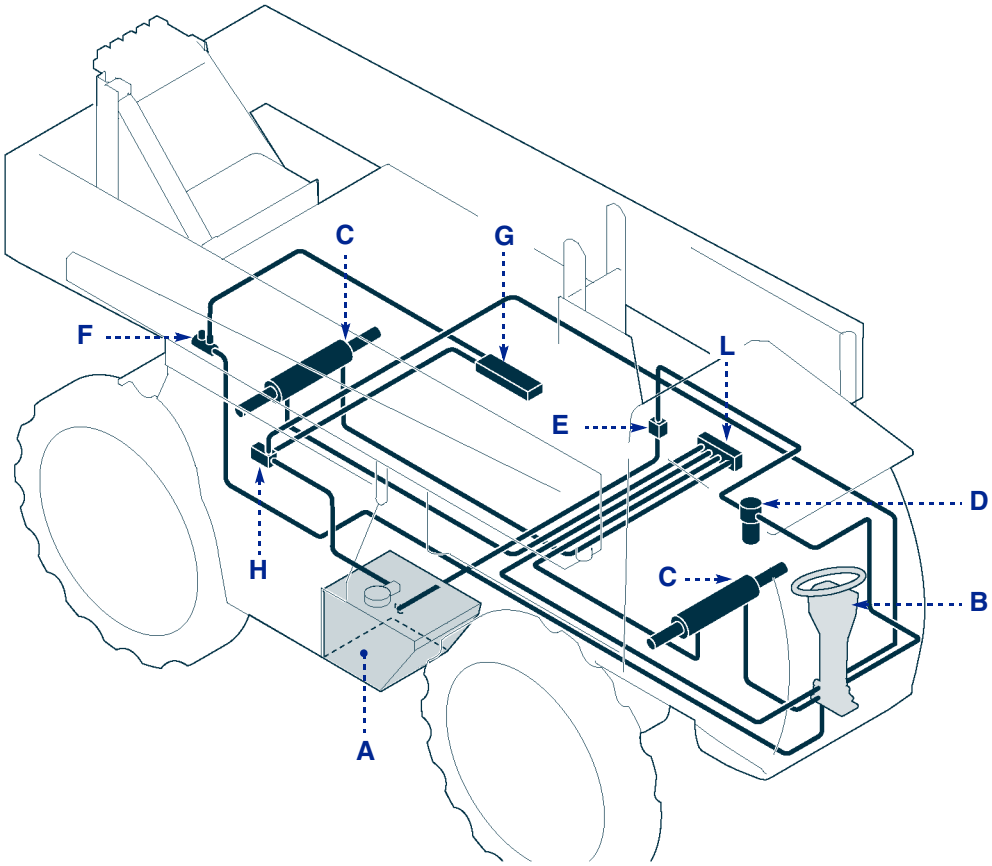
Legend

A - Oil tank.	**D -** Water pump hydraulic motor (DANFOSS OMS-125).	**G -** Self-priming pump hydraulic motor (CASAPPA PLM-20.25).
B - Hydraulic pump (CASAPPA PLP 30.34).	**E -** Block manifold.	**H -** 170-bar valve block (OB 1698.0)
C - Heat exchanger.	**F -** Drain filter (MPF 20).	**L -** Block manifold.

POWER STEERING SYSTEM

Hydrostatic power steering **(B)** activating both steering jacks **(C)** is powered by pump **(E)**.

The oil for jack activation is contained in the tank **(A)**.



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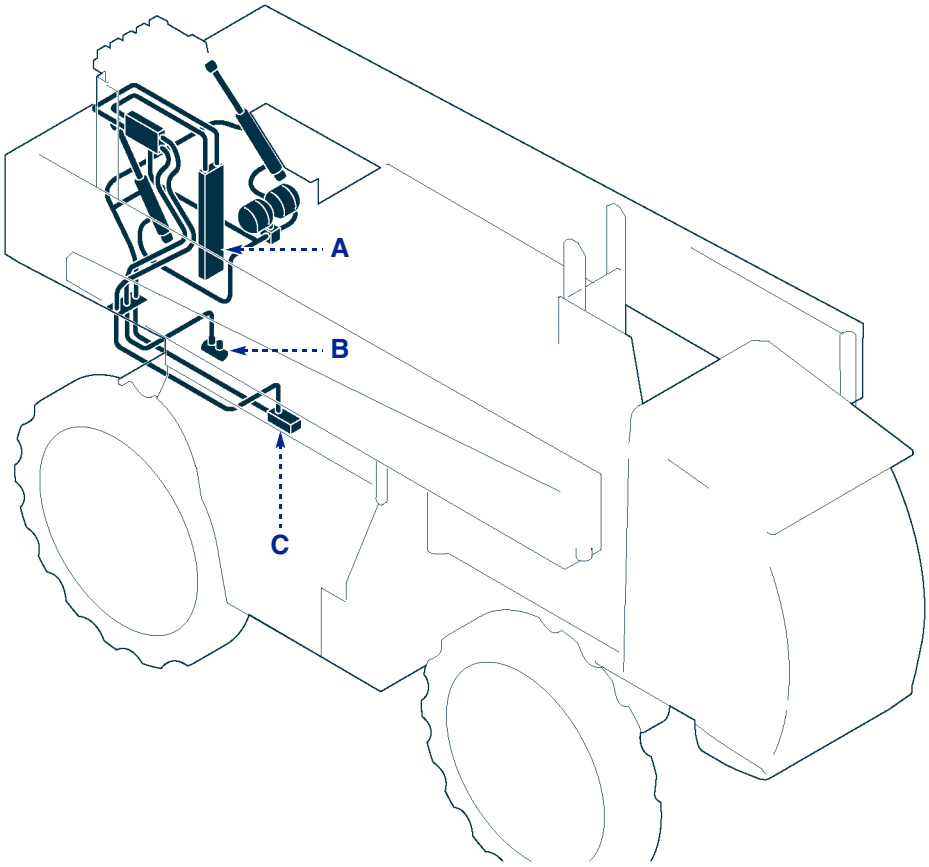
Legend

A - Oil tank.	**D -** Filter (MP-FHP 065/2).	**G -** 160-bar solenoid valve block.
B - 175-bar power steering (DANFOSS OSPC 100 LS).	**E -** Pump (CASAPPA PLP 20.14).	**H -** Block manifold.
C - Steering jack.	**F -** Flow divider valve	**L -** Electric block valve.

BAR LIFTING, BALANCING AND SUSPENSION SYSTEM

The hydraulic jacks for the boom lifting and balancing are controlled by flow divider valve **(B)**.



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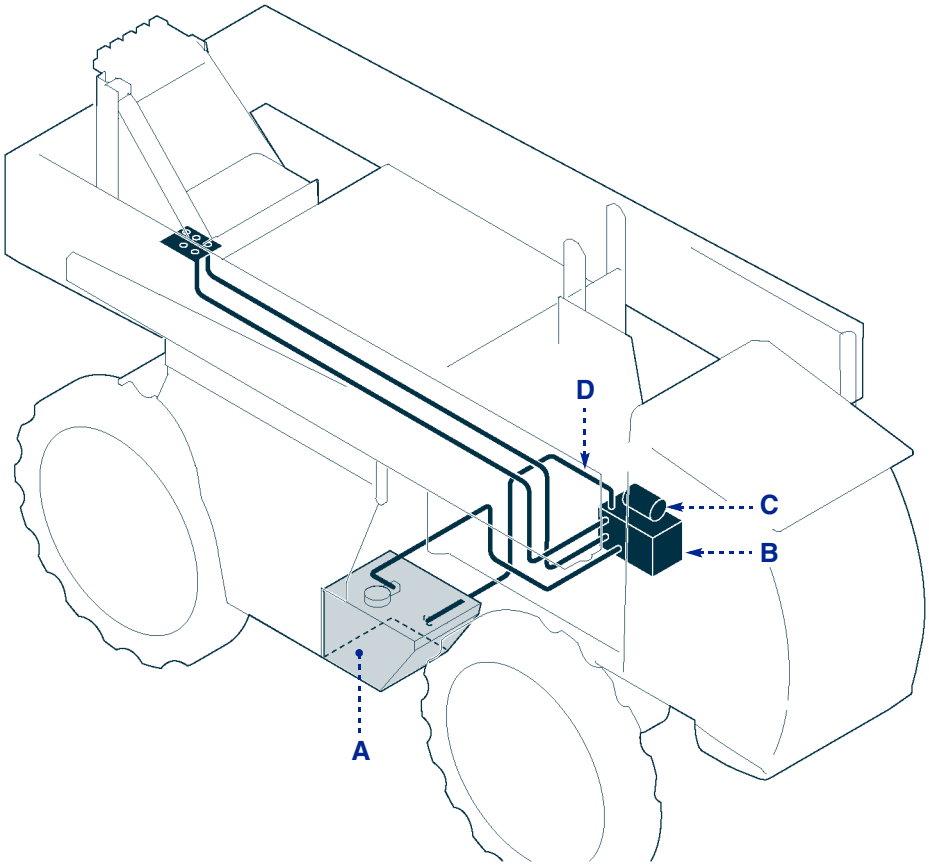
Legend

A - 170 bar solenoid valve block.
B - Flow divider valve.
C - Block manifold.

FAN SYSTEM OF THE "AIR ASSISTED KIT"

The fan is controlled by a hydraulic motor supplied by pump **(B)** directly assembled on the hydrostatic pump.

The oil for motor activation is contained in the tank **(A)**.



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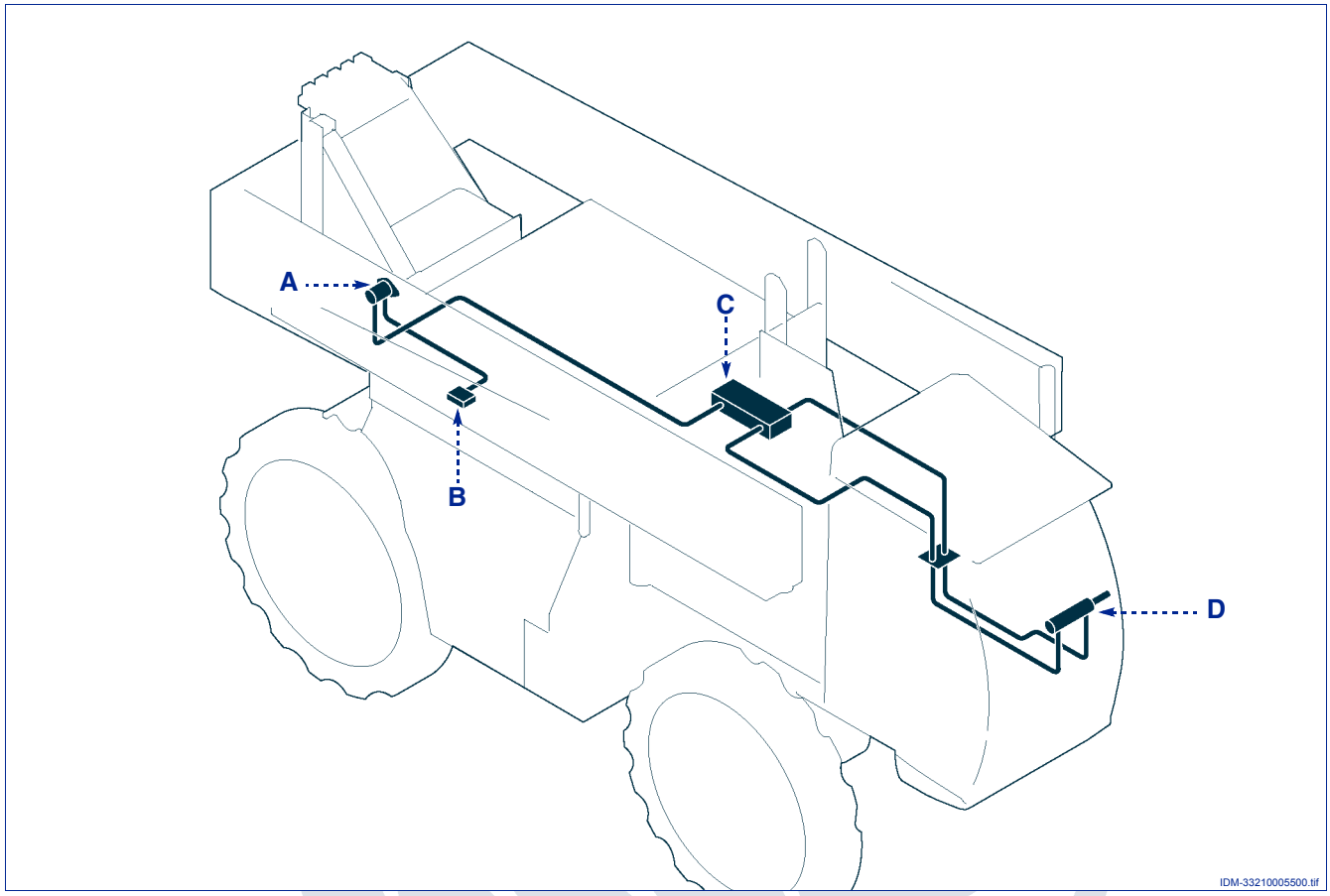
Legend

A - Oil tank.	**C -** Filter
B - Hydrostatic pump	**D -** Intake hose

USE OF SYSTEMS

The hydraulic jack for ladder **(D)** lifting and the hydraulic motor for hose winder **(A)** are both activated by s.v. block **(C)**.



Legend

A - Hose reel hydraulic motor.	**C -** Solenoid valve block
B - Block manifold.	**D -** Ramp lifting jack.

SPECIAL MAINTENANCE

Although the machine was designed and built to work in difficult environmental conditions, after a few years special maintenance must be carried out to preserve perfect efficiency and guarantee general safety.
All maintenance must be carried out by specially-trained staff in workshops which are adequately equipped.
The flexible hoses in the hydraulic system must be replaced every 6 years from the date of production. These components are subjected to stress due to ageing.

Caution - Precaution

Before doing any welding, deactivate the connection device of batteries, and clean the spraying system of the machine.

Do not carry out welding near flammable material or electric/electronic components.

Important

Before carrying out special maintenance work on the machine, the tank must be completely drained.

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FAILURE INFORMATION

TROUBLES, CAUSES, REMEDIES

The purpose of the following information is to identify and correct possible faults and malfunctions that may occur when using the machine.

Faults	Cause	Cure
The machine drops suddenly.	Faulty accumulators.	Replace the accumulators (see page 60).
	The shock absorber jacks are not adjusted correctly.	Adjust the shock absorber system (see page 20).
	Lack of oil in the shock absorber system.	Adjust the shock absorber system (see page 20)
The machine does not start.	Flat battery.	Replace the battery.
	No fuel in the tank.	Fill it up.
	Fuel injection pump empty.	Fill the pump and eliminate the air from the fuel system.
	Lever for machine movement not calibrated correctly.	Reset the lever in neutral position (0).
The oil temperature exceeds normal values (70° C).	Filters dirty and clogged.	Clean or replace the filters.
	Heat exchanger clogged.	Clean the heat exchanger.
	Oil level is too low in the tank.	Add oil to the tank.
You can hear noise coming from the front shock absorbers.	Front jacks not adjusted correctly.	Adjust the front jacks (see page 42)
The rear shock absorbers do not self-adjust (only for machines with self-adjusting shock absorbers).	No voltage at the potentiometer.	Check the electrical connections.
	Faulty potentiometer.	Replace the potentiometer.
	Faulty solenoid valves.	Replace the solenoid valves (see page 20).

Hydrostatic transmission system

Faults	Cause	Cure
Difficulty or inability to find the “0” position (neutral).	Faulty servo control.	Replace or repair the servo control **(B5)**.
Overheating of oil in the tank (over 80°C).	Oil level too low.	Add oil to the tank **(A)**.
	Oil radiator clogged.	Clean the radiator.
	Unsuitable hydraulic oil.	Replace with suitable oil.
	Filter clogged or intake hose blocked.	Replace the filter **(C)** and clean or replace the intake hose **(F)**.
	Maximum pressure valves dirty or faulty.	Remove the maximum pressure valves and clean or replace them **(B1** and **B2)**.
	Faulty motors.	Replace motors **(D)**.

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Faults	Cause	Cure
Noisy transmission.	Oil level too low.	Add oil to the tank **(A)**.
	Air in the intake hose.	Eliminate the air in the hose **(F)**.
	Faulty motors.	Replace motors **(D)**.
Delay in motion in both directions.	Clogged filter.	Replace the filter **(C)**.
	Air in the transmission.	Eliminate the air in the hose **(F)**.
	Maximum pressure supply valve is dirty or faulty.	Replace or clean the valve **(B4)**.
	Throttle valve opening for the servo control is clogged.	Take down the servo control valve **(B5)** and clean the opening in the throttle valve.
	Faulty motors.	Replace motors **(D)**.
The machine does not move forwards or backwards.	Too little oil in the tank.	Add oil to the tank **(A)**.
	Faulty forward motion lever.	Replace the forward motion lever.
	Breakage of the coupling between the pump and the diesel engine.	Replace the coupling.
	Faulty pump or broken drive shaft.	Replace the pump **(B)** or drive shaft.
	Filter clogged or intake hose blocked.	Replace the filter **(C)** or the intake hose **(F)**.
	Maximum pressure supply valve is dirty or faulty.	Replace or clean the valve **(B4)**.
	Faulty shutoff valve in the supply circuit.	Call for assistance.
	Internal damage to the pump or motors	Replace pump **(B)** or motor **(D)**.
The machine does not have enough drive or does not move in one of the directions.	Maximum pressure valve for the given direction is faulty or dirty.	As a check, invert the maximum pressure valves. If the same problem occurs in the other direction, the valve is either dirty or faulty. In this case, clean or replace the valve **(B1** and **B2)**.
	Faulty servo control.	Replace or repair the servo control **(B5)**.

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Power steering system

Faults	Cause	Cure
Faulty front and rear steering system.	Faulty power steering.	Replace the power steering **(B)**.
	Faulty valve on power steering input.	Replace the valve.
	Damaged pump.	Replace the pump **(E)**.
The rear steering is not functioning.	Faulty solenoid valve block **(G)**.	Replace the solenoid valve block **(G)**.
		Check the electrical connections on the solenoid valve block.
	Faulty distribution unit **(F)**.	Replace or repair the distribution unit **(F)**.
		Check the distribution unit's electrical connections **(F)**.

Bar lifting, balancing and suspension system

Faults	Cause	Cure
One of the bar's hydraulic components is not functioning.	Solenoid valve electrical system. There is no power supply to the general valve.	Check the wires in the cab controls and the connector above the solenoid valve.
	Solenoid valve electrical system. The general valve is functioning, but the one concerned is not.	Check the wires of the switch concerned in the cab and of the connector above the valve.
	Solenoid valve clogged.	Remove the solenoid valve and clean with compressed air.
		Replace the solenoid valve.

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INFORMATION ABOUT REPLACEMENTS

INSTRUCTIONS FOR PART REPLACEMENT

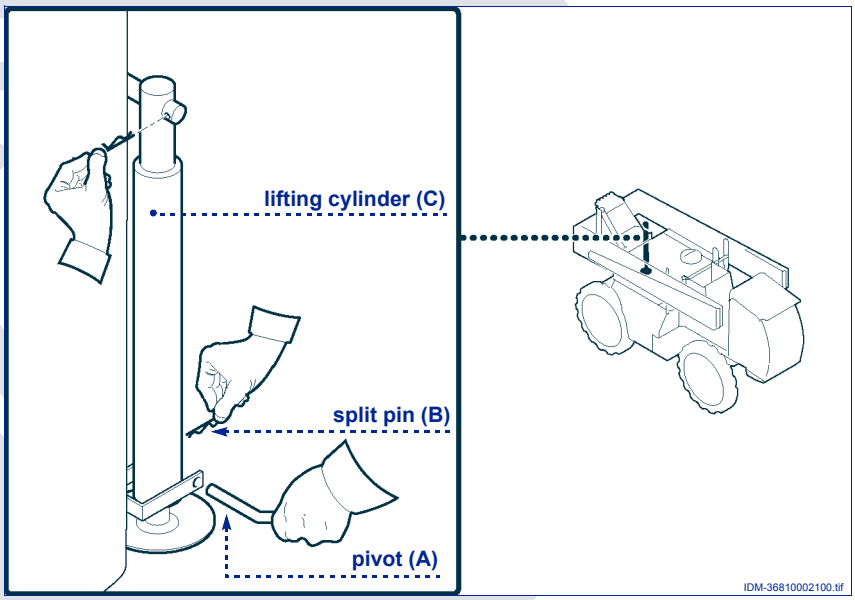
Before carrying out any maintenance work, enable all the safety devices and consider whether it may be necessary to provide appropriate information to the operators and the staff working on or near the machine. In particular, provide proper signs in the areas surrounding the machine and do not allow anyone to access any devices that, when activated, may cause unexpected dangerous conditions, resulting in damages to personal safety and health.

If worn components must be replaced, only use original spare parts.
The manufacturer will not be liable for damages to persons or components resulting from all use of non-original spare parts and special interventions that could modify the safety requirements, which have not been approved by the manufacturer himself.
To order components, refer to the indications given in the spare parts catalogue.

TYRE REPLACEMENT

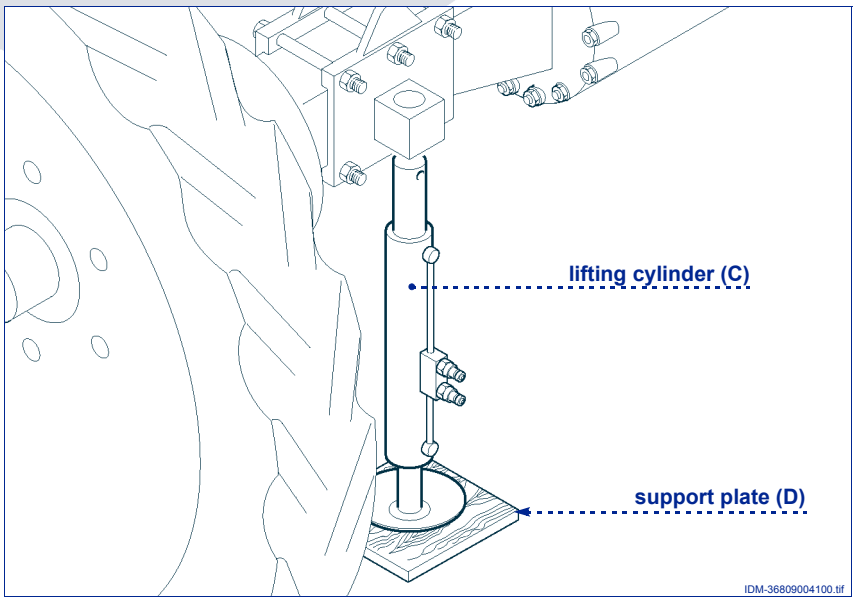
For this operation follow the procedure below.

1 - Pull out the pivot **(A)** and the split pin **(B)** to remove the lifting cylinder **(C)** provided.



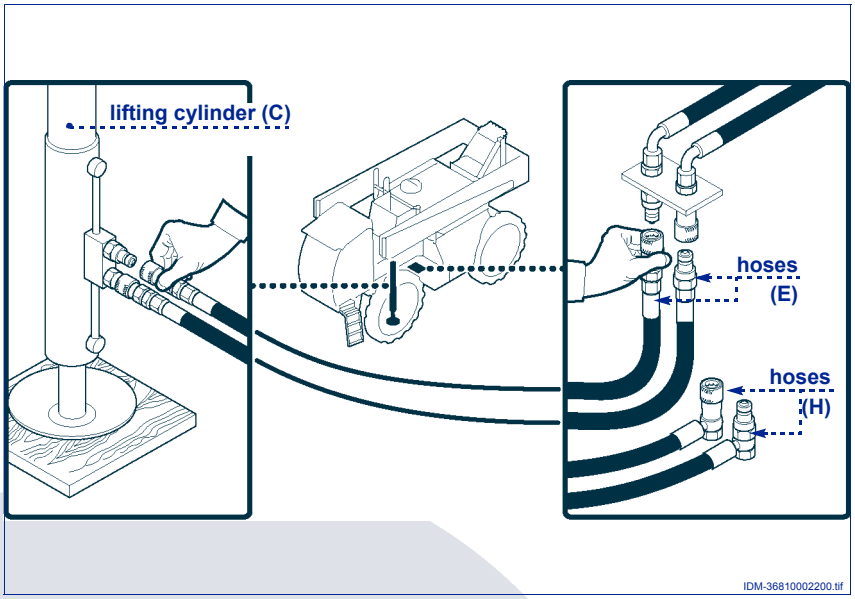
2 - Insert the lifting cylinder **(C)** in the housing provided to lift the tyre which needs to be replaced.

3 - Insert a support plate **(D)** to guarantee a surface which is large enough to support the lifting cylinder **(C)**.



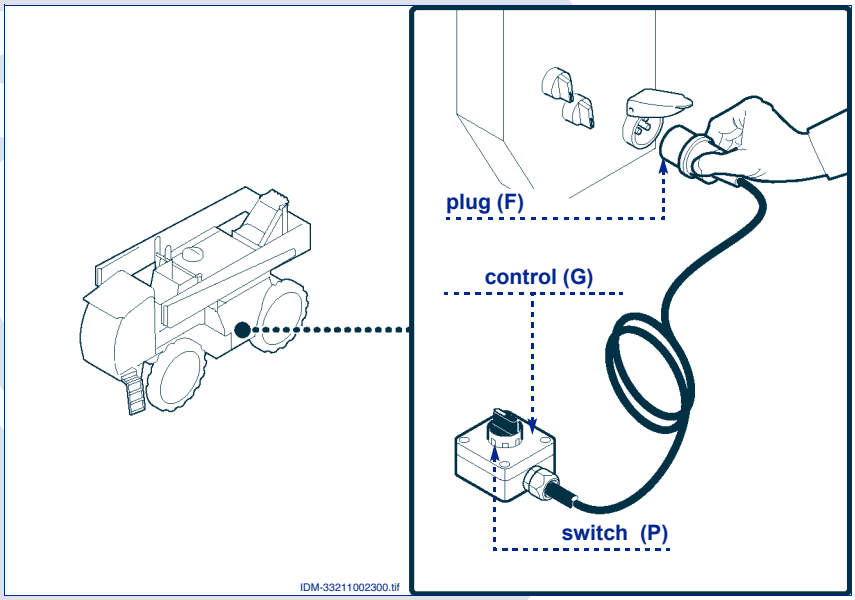
4 - Disconnect hoses **(H)** for ladder control.

5 - Connect the hoses **(E)** on the lifting cylinder **(C)** and on the points of attachment on the machine.

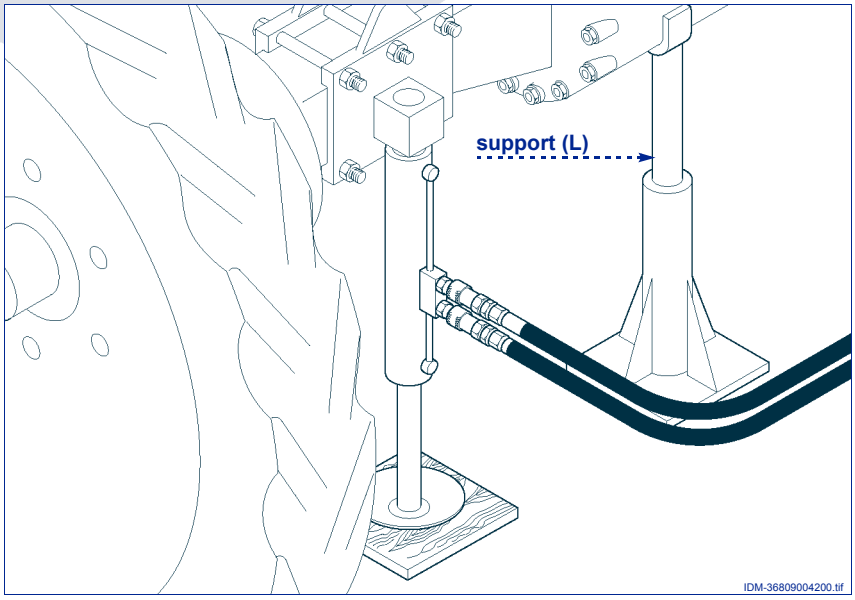


6 - Insert the plug **(F)** to enable the control electrically **(G)**.

7 - Use switch **(P)** to lift the wheel above the ground.



8 - Insert the support **(L)** to ensure that the wheel remains off the ground.



9 - Unscrew the nuts **(M)** that secure the wheel to remove it and change the tyre.

10 - Put the wheel back on and secure it with the nuts.

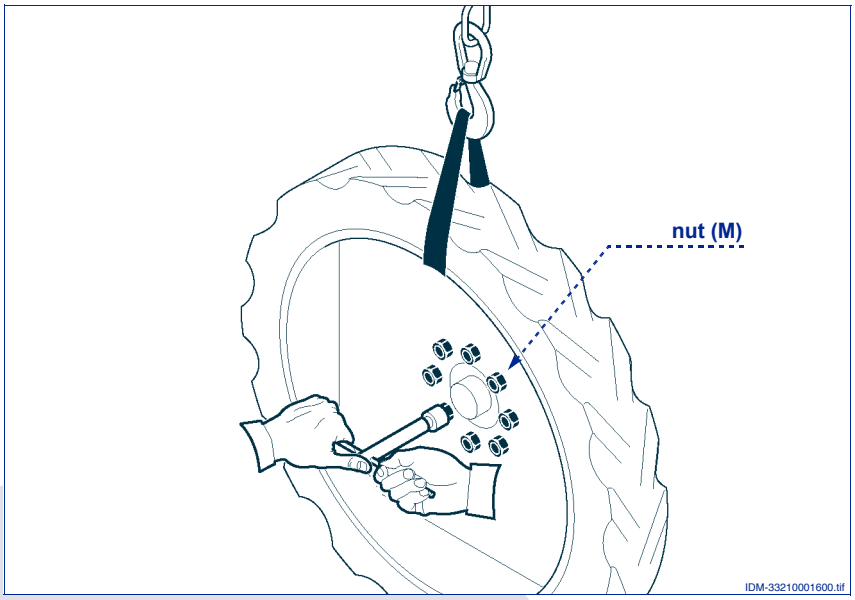
11 - Use switch **(P)**,to lift the axle and remove the support **(L)**.

12 - Use switch **(P)**, until the machine has been lowered completely.

13 - Close the lifting cylinder completely **(C)** and remove it from the support once the operation has been completed.

14 - Disconnect the hoses **(E)** and the plug of the control **(G)**.

15 - Put the lifting cylinder back in its place.



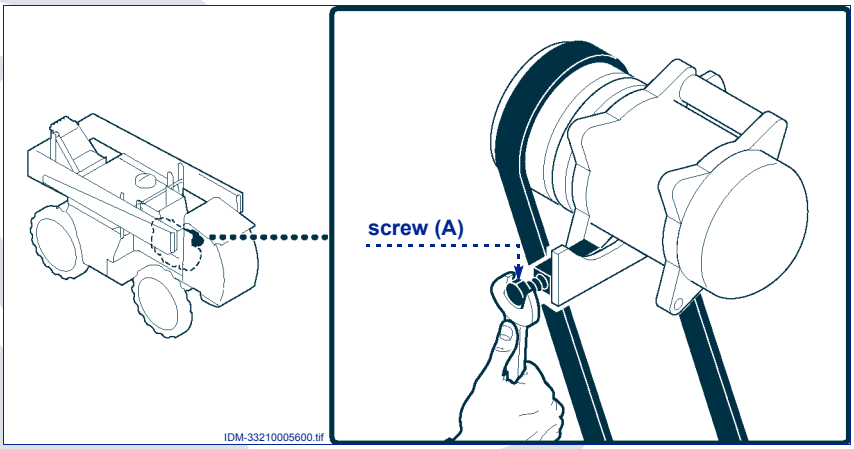
AIR CONDITIONING COMPRESSOR BELT REPLACEMENT

For this operation follow the procedure below.

1 - Turn the screw **(A)** to loosen the belt.

2 - Remove and change the belt.

3 - Adjust the belt tension (see page 23).

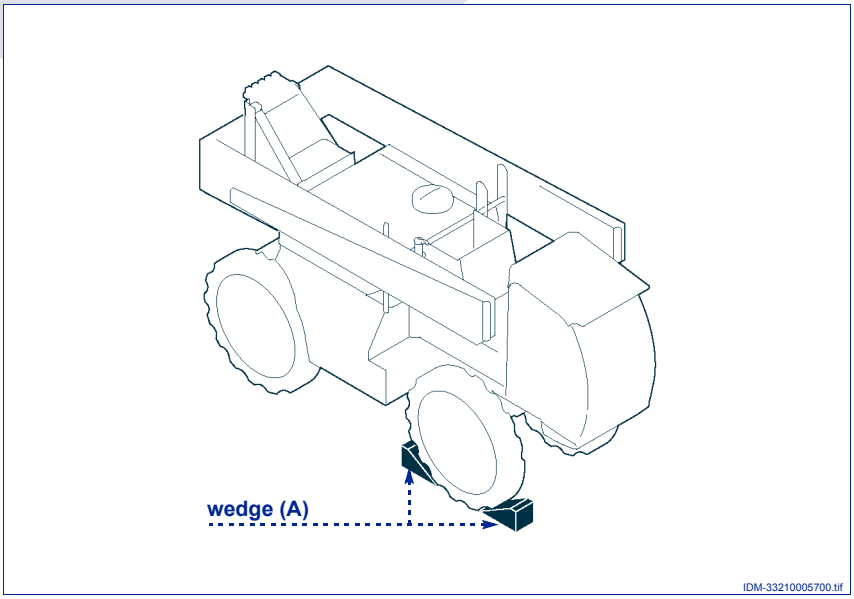


ACCUMULATOR REPLACEMENT

For this operation follow the procedure below.

1 - Place two safety wedges **(A)** as shown in the figure.

2 - Drain the hydraulic oil from the front and rear shock absorbers using a manual pump or by connecting to the lifting system of the machine (see page 20).

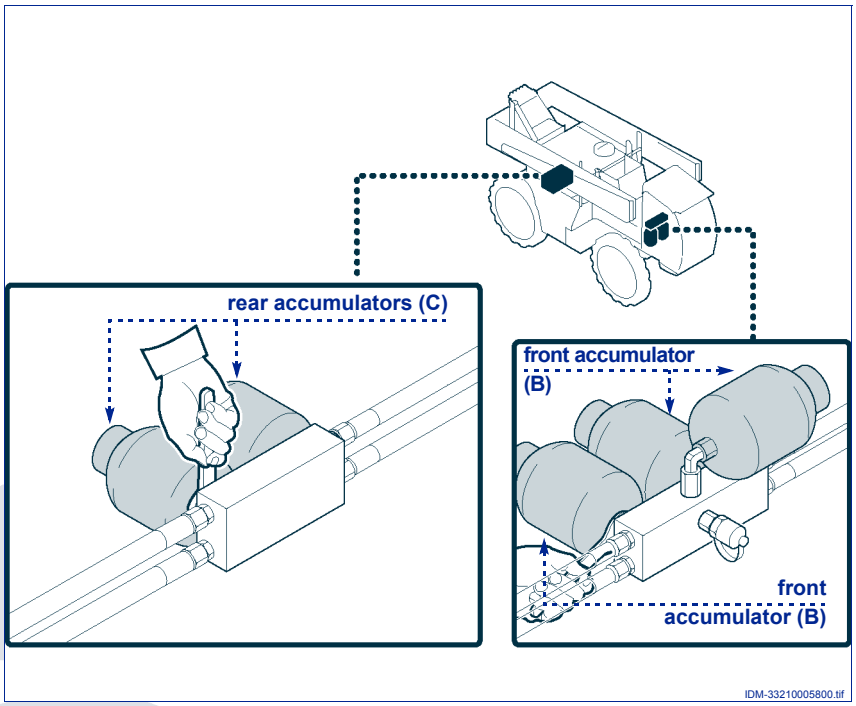


3 - Remove the front **(B)** and rear **(C)** accumulators.

4 - Replace the accumulators - either new or repaired - and fill the shock absorber system (see page 20).

Danger - Warning

Do not tamper with the accumulators. They are pressurised containers and can be regenerated by authorised personnel only.



HYDRAULIC SYSTEM OIL CHANGE

For this operation follow the procedure below.

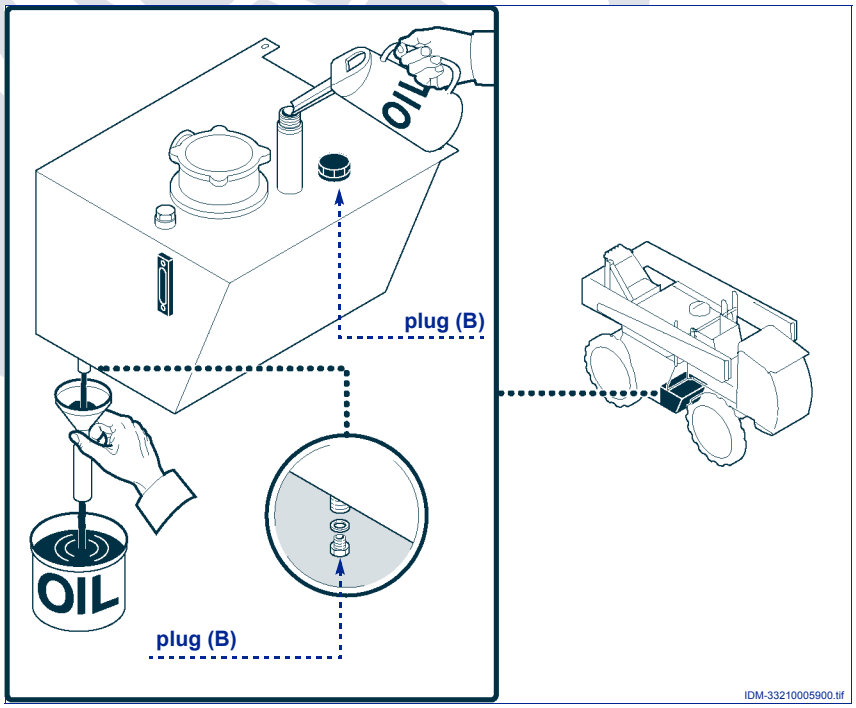
1 - Prepare a container with suitable capacity.

2 - Unscrew the drain plug **(A)** and drain the oil in the container completely.

3 - Screw the drain plug back on.

4 - Introduce the new oil through the load plug up to the correct level displayed on the indicator.

5 - Retighten the filler plug **(B)** and check for leaks.



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WATER TANK FILTER REPLACEMENT

For this operation follow the procedure below.

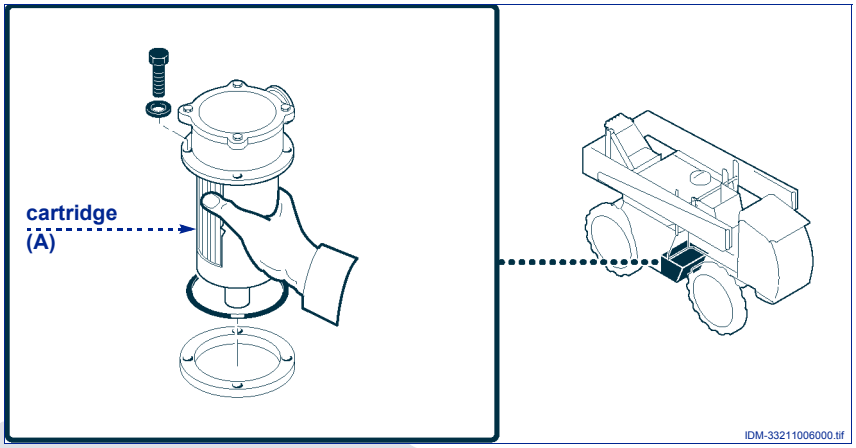
1 - Disconnect the drain hoses.

2 - Unscrew the filter fixing screws.

3 - Remove the filter and change the cartridge **(A)**.

4 - Replace the filter and secure it with the screws.

5 - Reconnect the hoses and check that all parts are tightened.

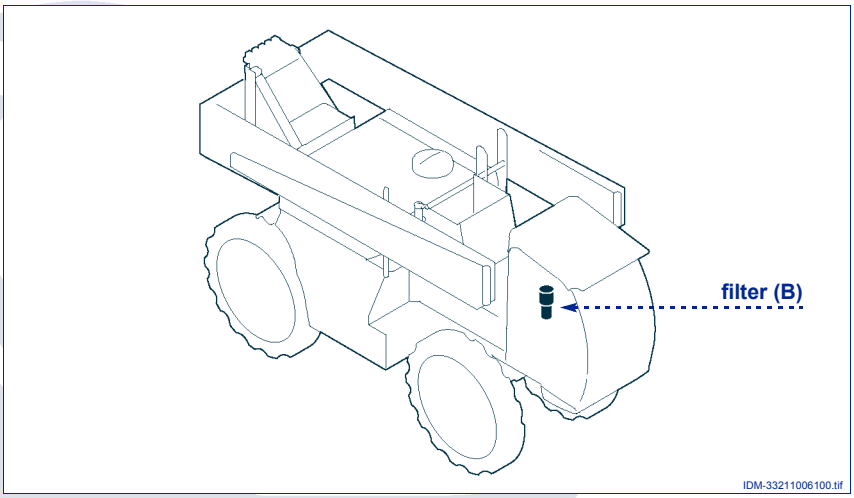


HYDRAULIC SYSTEM CARTRIDGE REPLACEMENT

For this operation follow the procedure below.

1 - Prepare a container for possible leakage.

2 - Unscrew filter **(A)**, replace the filter cartridge and screw the filter again.



CAB FILTER REPLACEMENT

For this operation follow the procedure below.

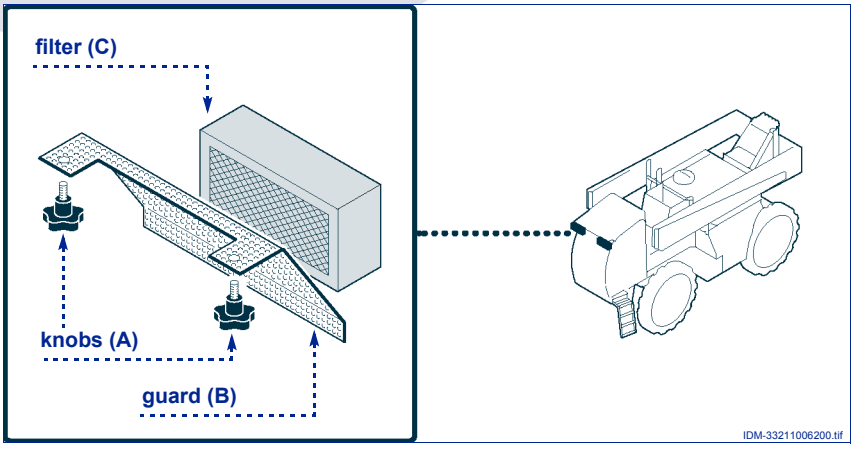
1 - Unscrew knobs **(A)** and disassemble guard **(B)**.

2 - Remove and replace the filter **(C)**.

3 - Replace the guard **(B)**.

Important

Check the gasket seal and replace the filter in the presence of toxic odours.



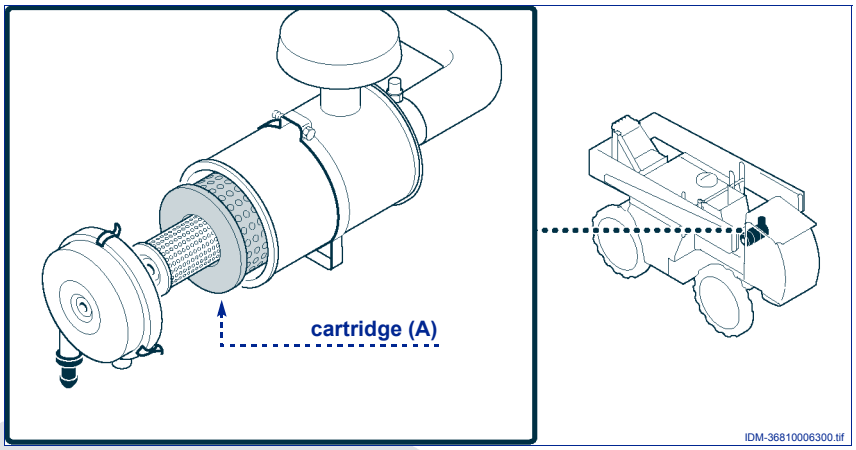
ENGINE AIR FILTER REPLACEMENT

For this operation follow the procedure below.

1 - Remove the cartridge **(A)**.

2 - Clean the container and the drain valve.

3 - Install a new cartridge, paying attention not to damage the seal gasket.



MACHINE DISPOSAL

Important

This operation must be made by expert operators, in the respect of safety norms on work and waste disposal. In order to avoid any injury to operators and the people nearby, do not leave the tools unattended in the working areas. Before giving the tools to the authorised personnel (waste collectors or dischargers), it is absolutely necessary to deposit the tools in zones closed to non-authorised personnel. Do not throw away non-biodegradable products, such as lubricant oils, batteries and non-iron components (foam, PVC, resins etc.). These products must be disposed in the respect of environment protection laws. In particular, deliver the used oils and batteries only to authorised collectors.

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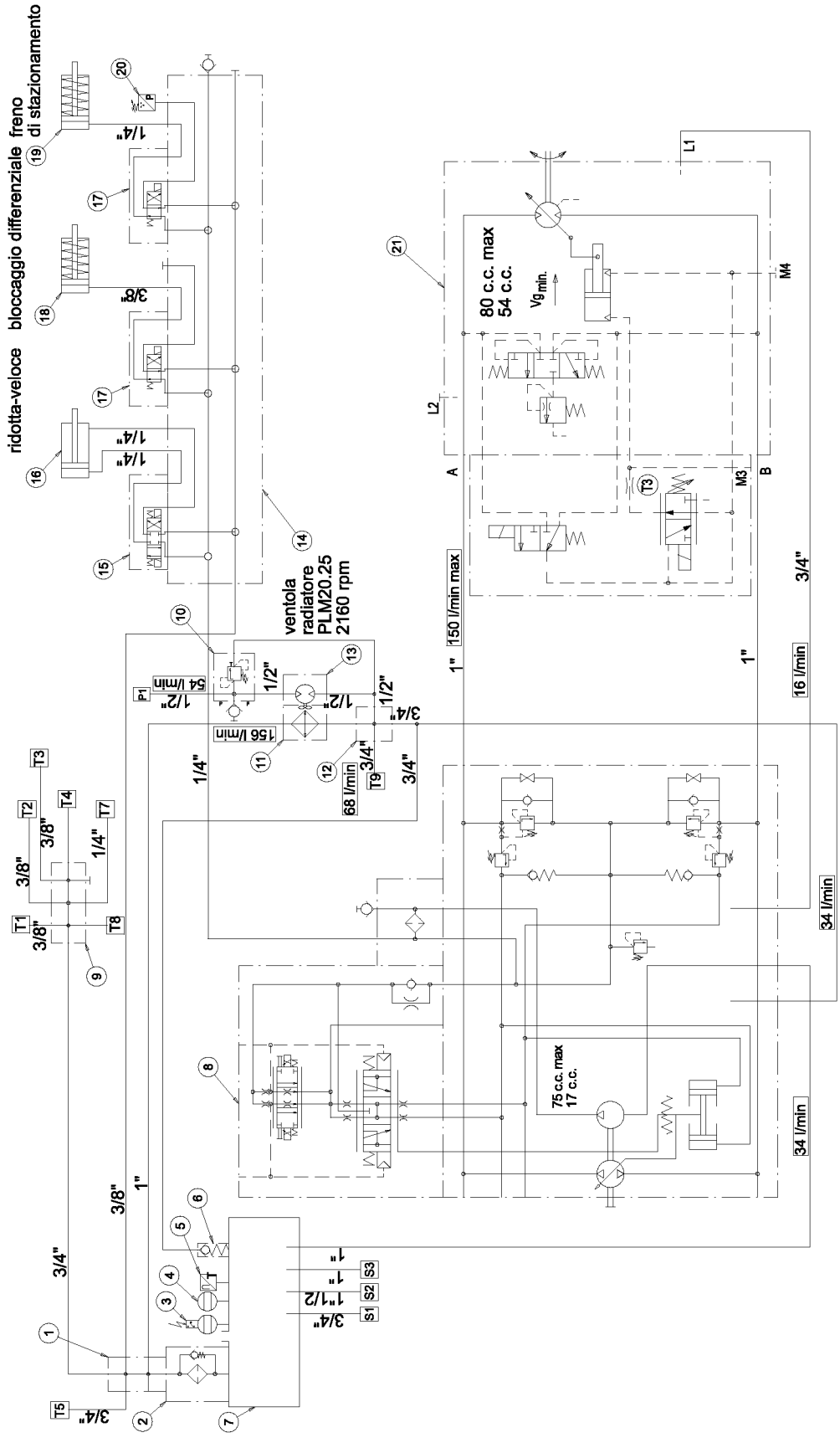
HYDRAULIC DIAGRAM



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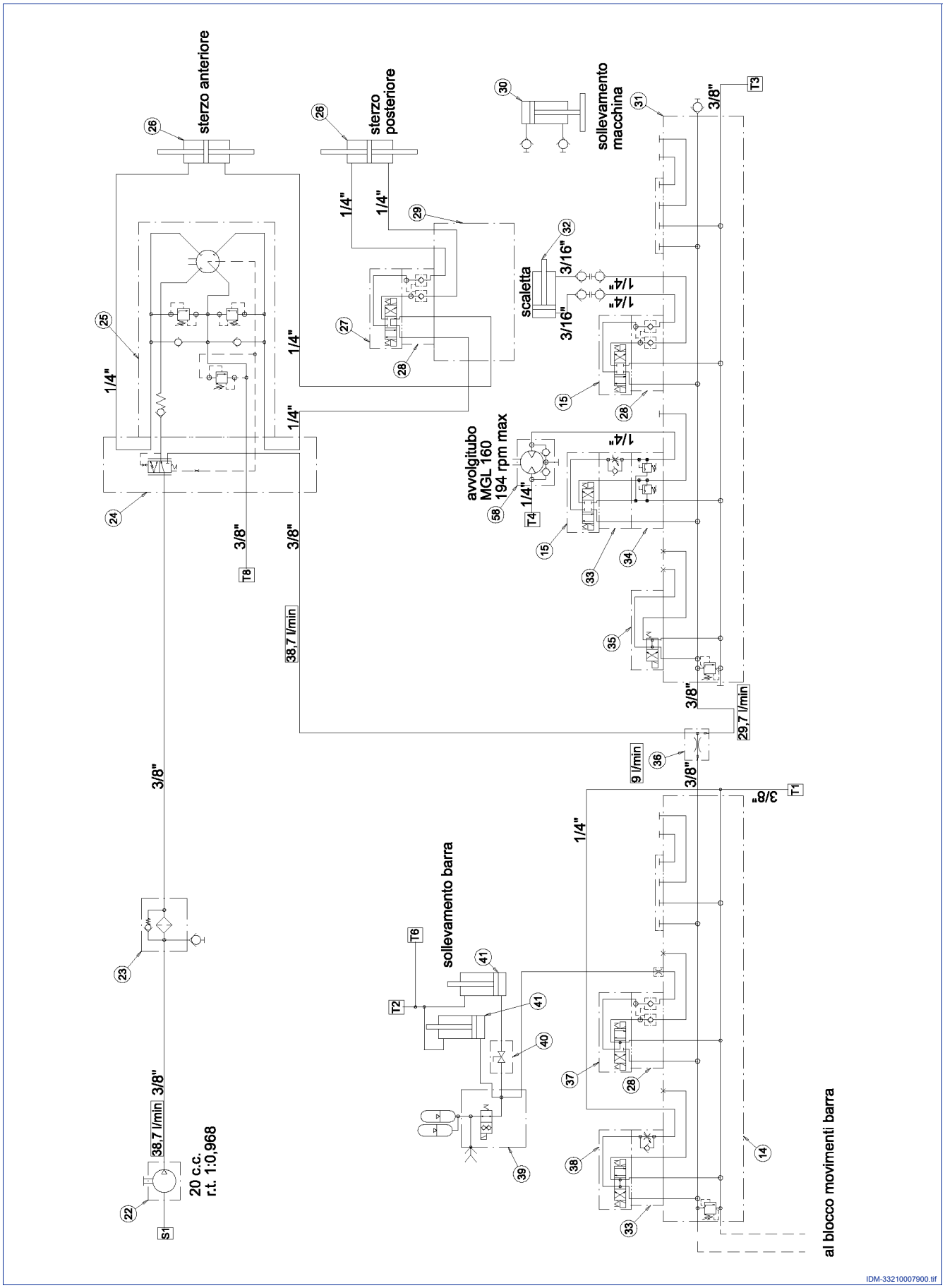

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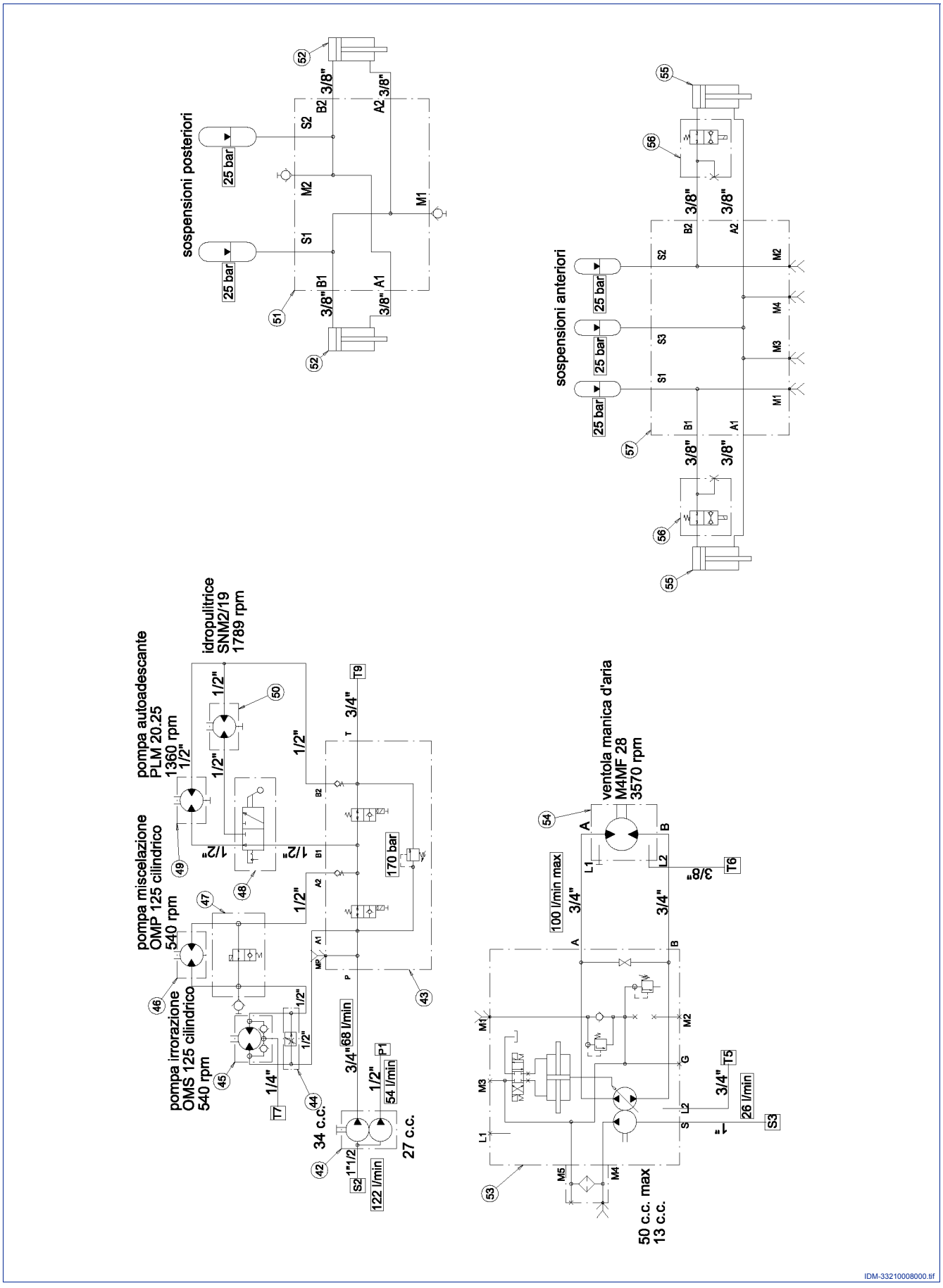
sospensioni posteriori
25 bar
25 bar
S2
S1
M2
M1
B2
B1
A2
A1
3/8"
3/8"
3/8"
3/8"
52
51
sospensioni anteriori
25 bar
25 bar
25 bar
S2
S3
S1
M2
M4
M3
M1
B2
B1
A2
A1
3/8"
3/8"
3/8"
3/8"
55
56
57
pompa autoadescante
PLM 20.25
1360 rpm
1/2"
idropulitrice
SNM2/19
1789 rpm
pompa miscelazione
OMP 125 cilindrico
540 rpm
pompa irrorazione
OMS 125 cilindrico
540 rpm
1/2"
1/2"
1/2"
1/2"
1/2"
1/2"
1/2"
1/4"
3/4"
3/4"
1/2"
1/2"
1/2"
1/2"
1/2"
1/2

Ref.	Code	Description	Supplier code
1	BG014323	Exhaust manifold	
2	BG012015	Filter	
3	BB50357000	Electric level	
4	BB42001000	Oil level	
5	BB50314027	Temperature sensor	
6	BB30906000	Single-acting valve	3/4" 2 bar
7	BG013851	Oil tank	
8	BG006944	Piston pump	
9	BB20212526	Exhaust manifold	
10	BB30910100	Pressure relief valve	
11	BG013543	Oil radiator	
12	BB2050900002	Exhaust manifold	
13	BB30385380	Engine	
14	BB30927000/3	Solenoid valve block	
15	BB30943010	Solenoid valve	4/3 sch E
16		Jack	
17	BB30943050	Solenoid valve	4/2 sch D
18		Differential gear lock jack	
19		Parking brake jack	
20	BG004425	Pressure switch	
21	BG000204	Engine	
22	BG014136	Gear pump	
23	BG002934	Filter	
24	BB30606001	Priority valve	
25	BB30606000	Hydrostatic power steering	
26		Front steering jack	
26		Rear steering jack	
27	BB30943000	Solenoid valve	4/3 sch G
28	BB30943100	Lock double valve	
29	BB30927000/1A	Block-plate for rear steering	
30 (A)	BG002765	Machine lifting jack	
31	BB30927000/4	Solenoid valve block	
32	BG013229	Ladder lifting jack	

(A) Suction hose kit
(B) High pressure cleaner kit
(C) Machine lifting jack kit

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Ref.	Code	Description	Supplier code
33	BB30943044	Capacity regulator	
34	BG016022	Valve block	
35	BB30943040	Solenoid valve	4/3 sch HA
36	BG006252	Flow divider valve	9 l/min.
37	BB30943030	Solenoid valve	4/3 sch J
38	BB30943045	Solenoid valve	4/3 sch HA
39	BG007772	Valve block	
40	BB50245101	High pressure cock	
41	BB2051106000	Spraying boom lifting jack	H=1000
42	BG014704	Gear pump	
43	BB30940800	Valve block	
44	BB30946200	Block with flow rate control valve	
45	BB30381100	Hydraulic motor for spraying pump	
46	BB30378400	Hydraulic motor for mixing pump	
47	BB30976100	Valve block	2/2 NA
48 (B)	BB50245210	Three-way cock	
49	BB30385390	Gear motor for self-priming pump	
50 (B)	BG005827	Hydraulic motor	
51	BB30940610	Rear suspension unit	
52	BB2051102050	Rear suspension jack	
53 (C)	BG006947	Piston pump	
54 (C)	BB30308100	Hydraulic motor for boom fan	
55	BB2051102000	Front suspension jack	
56	BB30940820	Valve block	
57	BB30940620	Front suspension unit	
58	RR50253160AG	Hose winder hydraulic motor	

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(A) Suction hose kit
(B) High pressure cleaner kit
(C) Machine lifting jack kit

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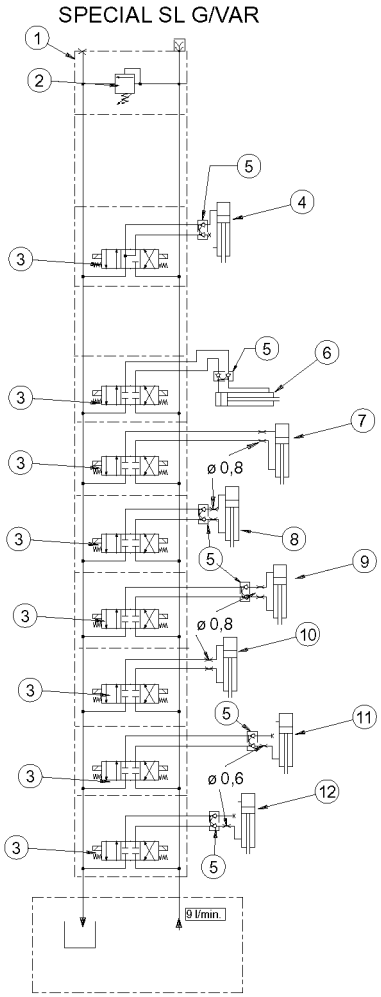
DIAGRAM OF THE SPRAYING BOOM HYDRAULIC SYSTEM



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Ref.	Code	Description
1	M1070100438	Solenoid valve block
2	GG8011V7012	Maximum pressure valve
3	GG8011V1251	Main valve
4	GG702540004V	Rotation jack
5	BB30942200	Block valves
6	GG702240001V	Balancing jack
7	GG702570001V	Left extension jack
8	GG702550009V	Left arm jack
9	GG702550009V	Right arm jack
10	GG702570001V	Right extension jack
11	GG702550028V	R/H variable position jack
12	GG702550028V	L/H variable position jack

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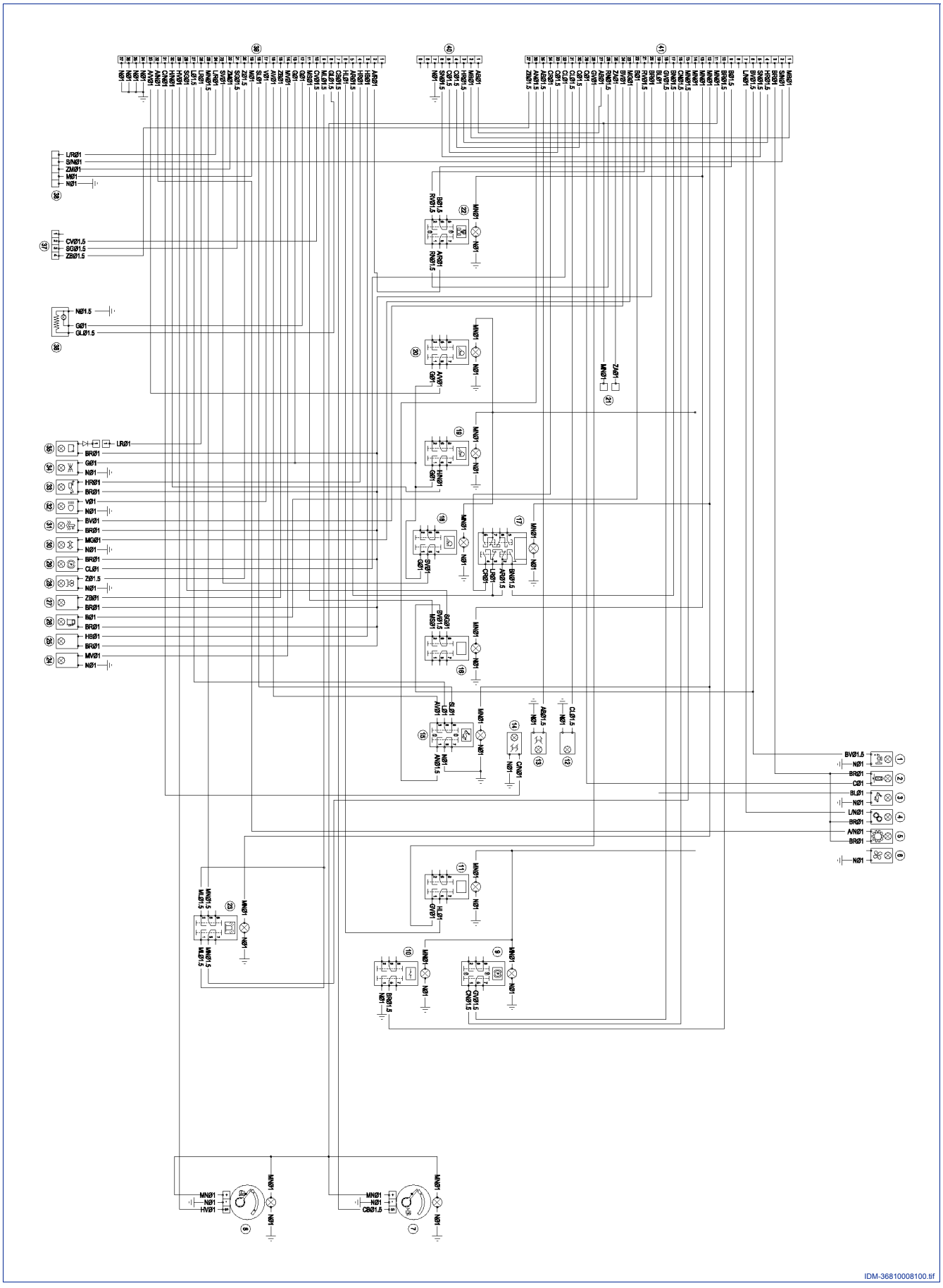
OSCILLATOR SWITCH LINE ELECTRICAL SYSTEM DIAGRAM



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Ref.	Description
1	WARNING LIGHT, WATER PUMP ACTIVE
2	WARNING LIGHT, HYDRAULIC OIL LEVEL
3	WARNING LIGHT, HYDRAULIC GEARBOX
4	WARNING LIGHT, DIFFERENTIAL GEAR LOCKED
5	MECHANICAL GEARBOX WARNING LIGHT
6	SUCTION HOSE WARNING LIGHT
7	FUEL LEVEL GAUGE
8	WATER TEMPERATURE GAUGE
9	PARKING BRAKE SWITCH
10	MAIN SWITCH
11	DAMPER LOCK SWITCH
12	WARNING LIGHT, WHEELS IN THE MIDDLE POSITION
13	WARNING LIGHT, 4 STEERING WHEELS
14	WARNING LIGHT, PARALLEL AXIS STEERING WHEELS
15	GEAR CHANGE SWITCH
16	WATER PUMP SWITCH
17	LADDER SWITCH
18	OPTIONAL SERVICE LIGHT SWITCH
19	FRONT SERVICE LIGHT SWITCH
20	FRONT/REAR SERVICE LIGHT SWITCH
21	OPTIONAL
22	STEERING ACTIVATING SWITCH
23	WARNING BEACON SWITCH
24	OPTIONAL WARNING LIGHT
25	OPTIONAL WARNING LIGHT
26	FUEL WARNING LIGHT
27	WARNING LIGHT, WATER PUMP ALARM
28	SPARK PLUG WARNING LIGHT

Ref.	Description
29	PARKING BRAKE WARNING LIGHT
30	DIRECTION INDICATOR WARNING LIGHT
31	MOTOR TEMPERATURE WARNING LIGHT
32	WARNING LIGHT, HEADLIGHTS ON FULL BEAM
33	MOTOR OIL PRESSURE WARNING LIGHT
34	WARNING LIGHT, PARKING LIGHTS
35	ALTERNATOR WARNING LIGHT
36	LIGHTER
37	OPTIONAL 4-PIN CONNECTOR
38	ACCELERATOR
39	37-PIN CONNECTOR, FUSE BLOCK LINE CONNECTION
40	9-WAY F CONNECTOR, SAUER LINE CONNECTION
41	RED 37-PIN CONNECTOR, FUSE BLOCK LINE CONNECTION

	Colours
A	LIGHT BLUE
B	WHITE
C	ORANGE
G	YELLOW
H	GRAY (SILVER)
L	DARK BLUE
M	BROWN
N	BLACK
R	RED
S	PINK
V	GREEN
Z	VIOLET (PURPLE)

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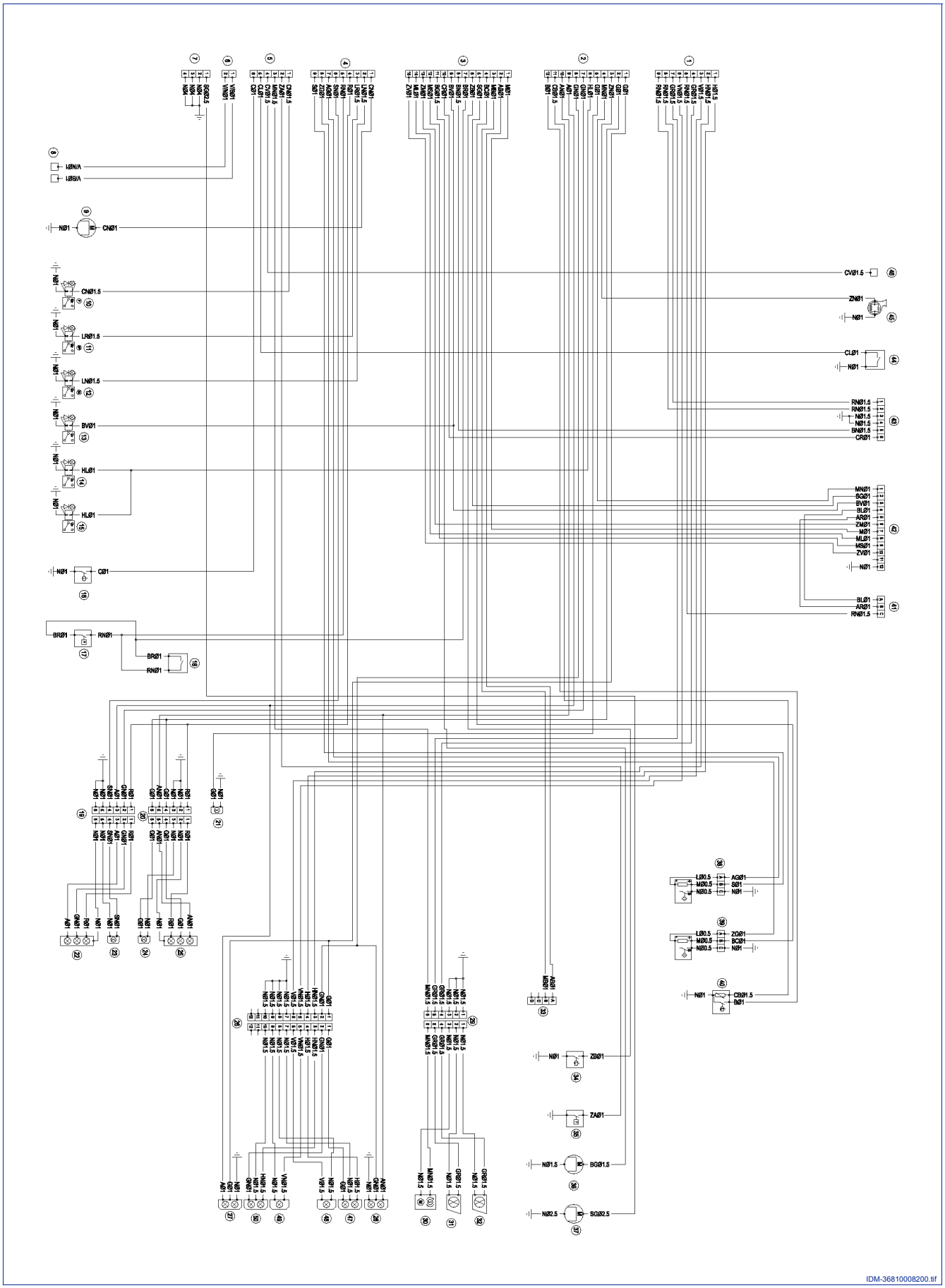
CENTRAL LINE ELECTRICAL SYSTEM DIAGRAM



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Ref.	Description
1	9-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
2	12-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
3	15-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
4	9-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
5	6-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
6	2-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
7	4-PIN CONNECTOR, CENTRAL LINE-DASHBOARD LINE CONNECTION
8	SPEED SENSOR
9	GREASING PUMP
10	PARKING BRAKE S.V.
11	S.V. FOR REAR DISPLACEMENT SHIFTING
12	S.V. FOR FRONT DISPLACEMENT SHIFTING
13	WATER PUMP S.V.
14	DAMPER UNIT S.V.
15	DAMPER UNIT S.V.
16	HYDRAULIC OIL LEVEL BULB
17	STOP BULB
18	BRAKE PUMP BULB
19	6-PIN CONNECTOR, CENTRAL LINE - RIGHT REAR LIGHT LINE CONNECTION
20	6-PIN CONNECTOR, CENTRAL LINE - LEFT REAR LIGHT LINE CONNECTION
21	END-OUTLINE MARKER LAMP
22	RIGHT REAR LIGHT
23	BACK-UP LIGHT
24	NUMBERPLATE LIGHT
25	LEFT REAR LIGHT
26	12-PIN CONNECTOR, CENTRAL LINE - FRONT LIGHT LINE CONNECTION
27	PARKING TAILLIGHT - RIGHT FRONT INDICATOR LIGHT
28	PARKING TAILLIGHT - LEFT FRONT INDICATOR LIGHT
29	6-PIN CONNECTOR, CENTRAL LINE - REAR SERVICE LIGHT CONNECTION
30	ROTATING LAMP
31	SERVICE LIGHT
32	SERVICE LIGHT
33	FORWARD PUMP
34	WATER ALARM SENSOR
35	HYDRAULIC OIL TEMPERATURE SENSOR
36	BAG WASHER MOTOR
37	BAG WASHER MOTOR
38	SENSOR, SPRAYER FULL
39	SENSOR, SPRAYER FULL
40	FUEL FLOAT
41	3- PIN CONNECTOR, CENTRAL LINE - HOSE WINDER PUSH-BUTTON PANEL CONNECTION
42	12-PIN CONNECTOR, CENTRAL LINE - PUSH BUTTON PANEL CONNECTION
43	6-PIN CONNECTOR, CENTRAL LINE - PUSH BUTTON PANEL CONNECTION
44	PARKING BRAKE BULB
45	HORN
46	CENTERING H2O PEDAL
47	DIPPED HEADLIGHT - RIGHT PARKING LIGHT
48	RIGHT HEADLIGHT
49	LEFT HEADLIGHT
50	DIPPED HEADLIGHT - LEFT PARKING LIGHT

	Colours
A	LIGHT BLUE
B	WHITE
C	ORANGE
G	YELLOW
H	GRAY (SILVER)
L	DARK BLUE
M	BROWN
N	BLACK
R	RED
S	PINK
V	GREEN
Z	VIOLET (PURPLE)

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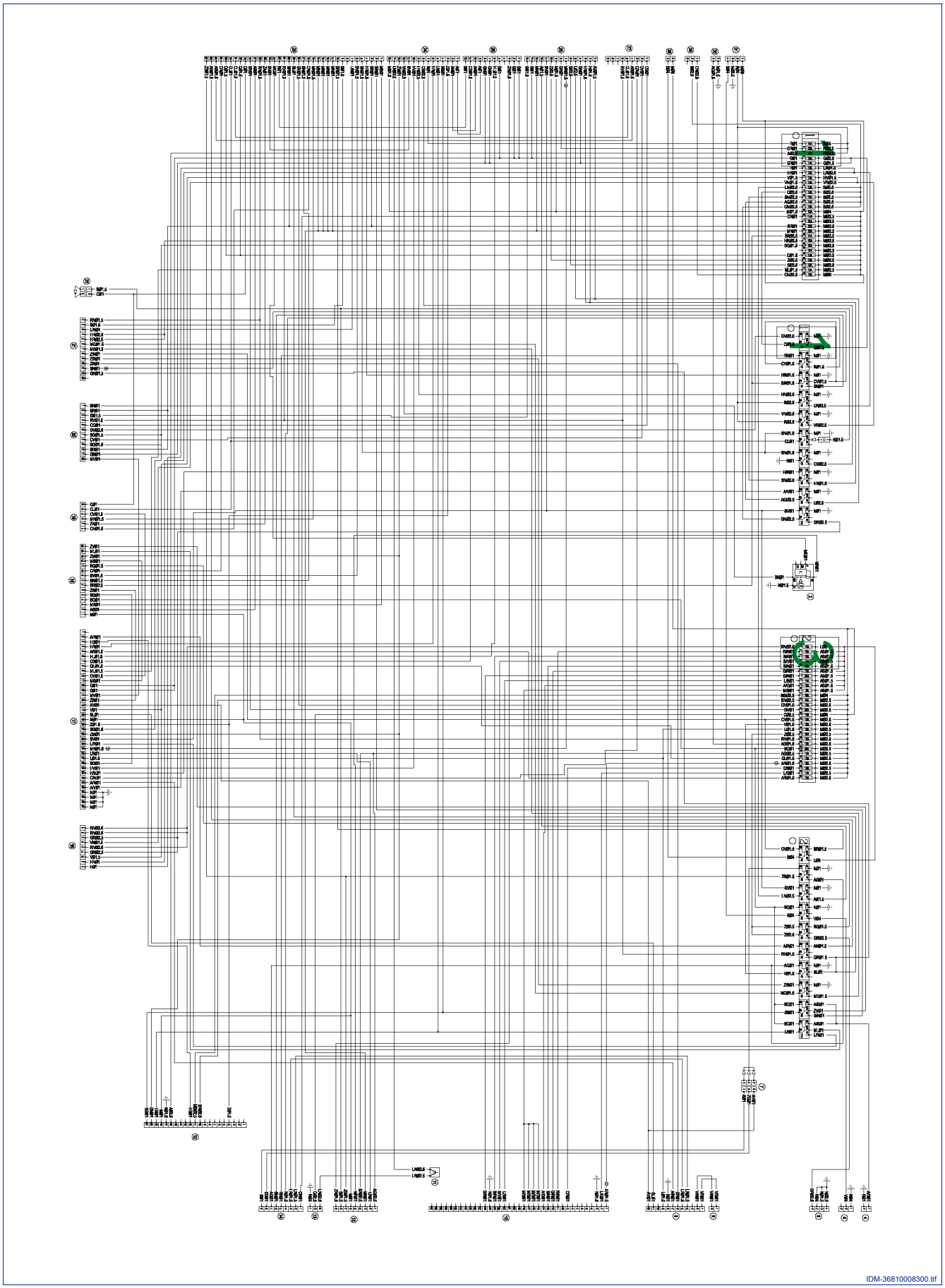
FUSE-HOLDER LINE ELECTRICAL SYSTEM DIAGRAM



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Ref.	Description
1	FUSE BLOCK BOX - RELAY HOLDER 1
2	INTERMITTENCE OF DIRECTION INDICATORS
3	FUSE BLOCK BOX - RELAY HOLDER 2
4	2-WAY F CONNECTOR, SEAT SWITCH CONNECTION
5	3-WAY M CONNECTOR, COMPUTER OPTIONAL POWER SUPPLY CONNECTION
6	4-WAY F CONNECTOR, CENTRAL LINE CONNECTION
7	DIODE BLOCK CONNECTOR
8	2-WAY M CONNECTOR, CENTRAL LINE CONNECTION
9	12-WAY M CONNECTOR, GEARBOX CONTROL UNIT CONNECTION
10	37-WAY CONNECTOR, SALVARANI SYSTEM CONNECTION
11	AIR-CONDITIONING PRESSURE SWITCH
12	BLACK 9-WAY F CONNECTOR, STEERING COLUMN LINE CONNECTION
13	3-WAY F CONNECTOR, CENTRAL LINE CONNECTION
14	9-WAY M CONNECTOR, CENTRAL LINE CONNECTION
15	21-WAY CONNECTOR, MOTOR LINE CONNECTION
16	9-WAY F CONNECTOR, CENTRAL LINE CONNECTION
17	37-WAY CONNECTOR, SWINGING ELEMENT LINE CONNECTION
18	15-WAY M CONNECTOR, CENTRAL LINE CONNECTION
19	6-WAY M CONNECTOR, CENTRAL LINE CONNECTION
20	BLACK 12-WAY F CONNECTOR, STEERING COLUMN LINE CONNECTION
21	13-WAY M CONNECTOR, CONNECTION

Ref.	Description
22	DIODE BLOCK CONNECTOR
23	RED 37-WAY CONNECTOR, SWINGING ELEMENT LINE CONNECTION
24	BLACK 15-WAY F CONNECTOR, STEERING COLUMN LINE CONNECTION
25	12-WAY M CONNECTOR, CENTRAL LINE CONNECTION
26	RED 15-WAY F CONNECTOR, CAB LINE CONNECTION
27	9-WAY M CONNECTOR, CONNECTION
28	2-WAY F CONNECTOR, STEERING COLUMN LINE CONNECTION
29	3-WAY F CONNECTOR, STEERING COLUMN LINE CONNECTION
30	2-WAY F CONNECTOR, PNEUMATIC SEAT CONNECTION
31	BLACK 4-WAY F CONNECTOR, STEERING COLUMN LINE CONNECTION

	Colours
A	LIGHT BLUE
B	WHITE
C	ORANGE
G	YELLOW
H	GRAY (SILVER)
L	DARK BLUE
M	BROWN
N	BLACK
R	RED
S	PINK
V	GREEN
Z	VIOLET (PURPLE)

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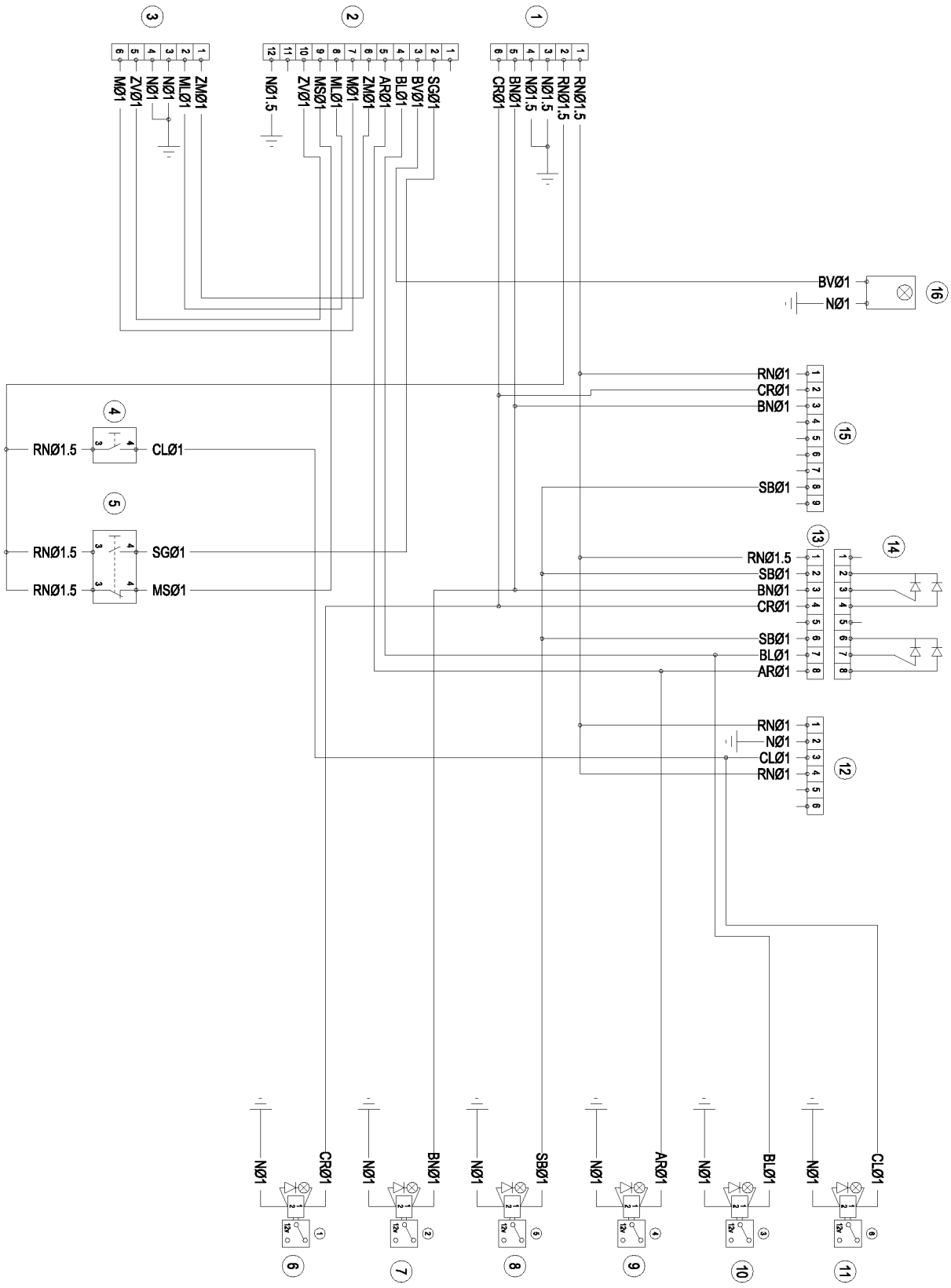
WIRING DIAGRAM FOR PUSH-BUTTON PANEL



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Ref.	Description
1	6-PIN CONNECTOR, PUSH-BUTTON PANEL LINE - CENTRAL LINE CONNECTION
2	12-PIN CONNECTOR, PUSH-BUTTON PANEL LINE - CENTRAL LINE CONNECTION
3	6-PIN CONNECTOR, PUSH-BUTTON PANEL LINE - ACCELERATOR CONNECTION
4	SELF-PRIMING PUMP COMMAND SELECTOR
5	WATER PUMP COMMAND SELECTOR
6	LADDER DOWNSTROKE S.V.
7	LADDER UPSTROKE S.V.
8	MAIN S.V.
9	HOSE UNWINDER S.V.
10	HOSE WINDER S.V.
11	SELF-PRIMING PUMP S.V.
12	LITRE-COUNTER CONNECTOR
13	8-PIN CONNECTOR, PUSH-BUTTON PANEL LINE - DIODE HOLDER BOX CONNECTION
14	DIODE HOLDER BOX
15	9-PIN CONNECTOR, PUSH-BUTTON PANEL LINE - EXTERNAL P.B. PANEL CONNECTION
16	WATER PUMP WARNING LIGHT

	Colours
A	LIGHT BLUE
B	WHITE
C	ORANGE
G	YELLOW
H	GRAY (SILVER)
L	DARK BLUE
M	BROWN
N	BLACK
R	RED
S	PINK
V	GREEN
Z	VIOLET (PURPLE)

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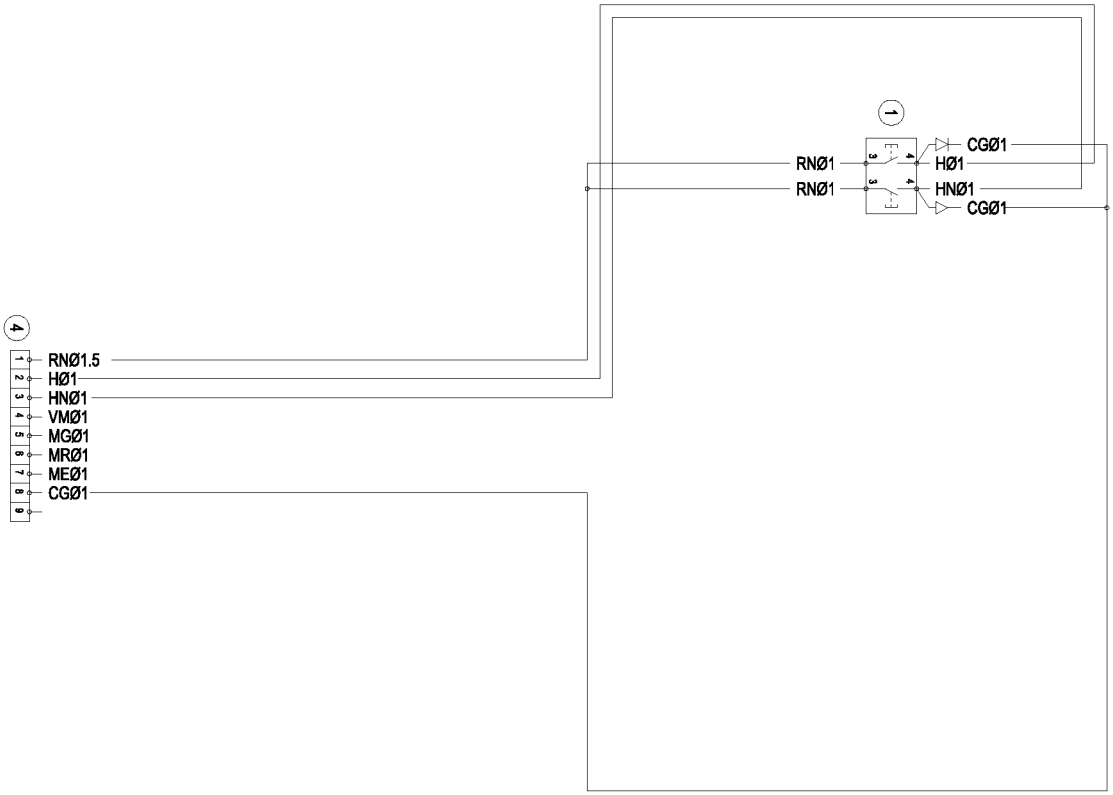
WIRING DIAGRAM FOR PUSH-BUTTON PANEL EXTENSION



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Ref.	Description
1	LADDER UPSTROKE-DOWNSTROKE COMMAND SWITCH
4	9-PIN ROUND PLUG, PUSH-BUTTON PANEL LINE CONNECTION

	Colours
A	ORANGE
B	WHITE
C	PINK
D	GREY
E	GREEN
F	BLUE
G	YELLOW
H	SKY BLUE
M	BROWN
N	BLACK
R	RED
V	PURPLE

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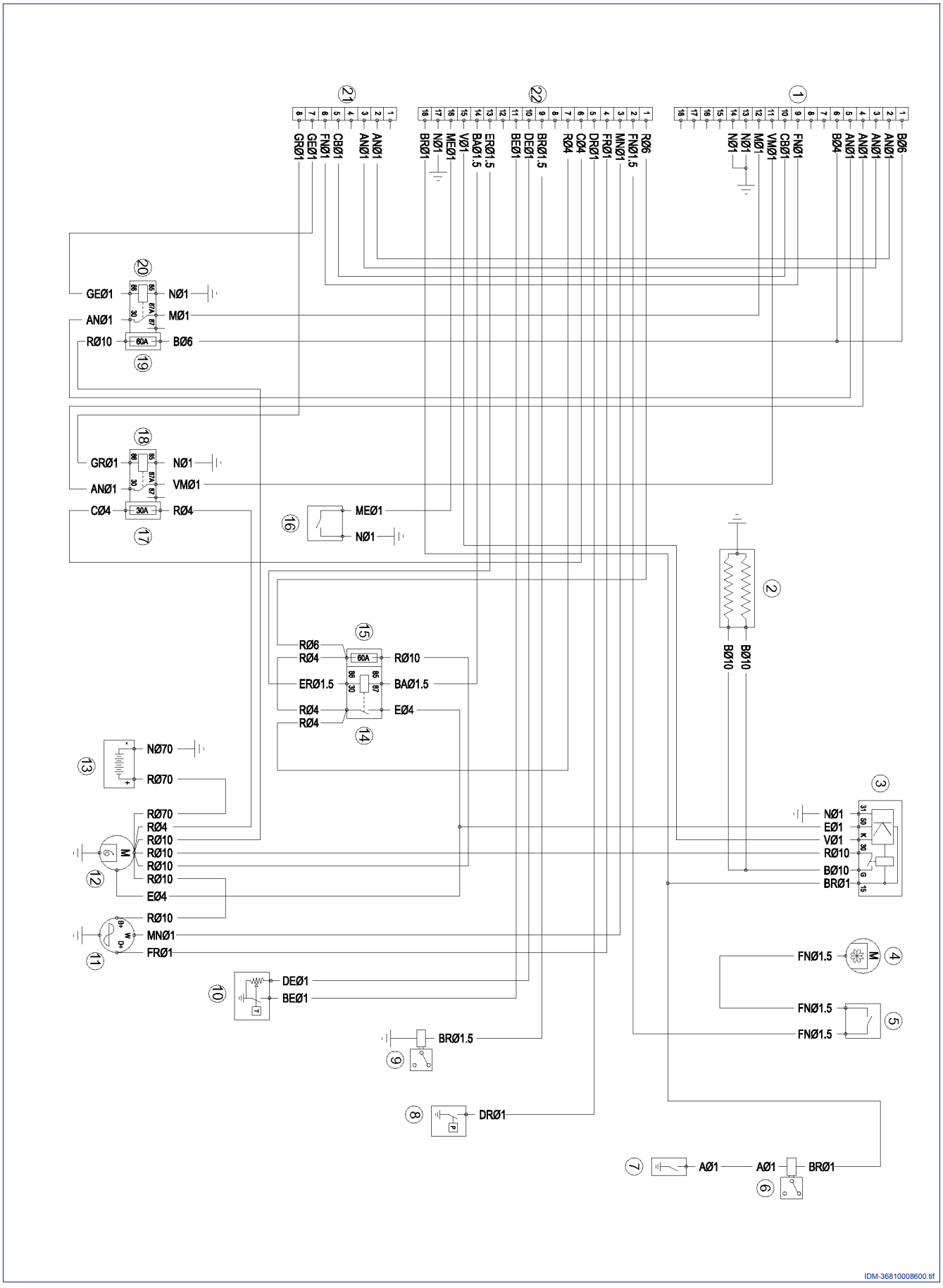
MOTOR LINE ELECTRICAL SYSTEM DIAGRAM



Ref.	Description
1	18-PIN CONNECTOR, STEERING COLUMN LINE CONNECTION
2	SPARK PLUG RESISTORS
3	SPARK PLUG CONTROL UNIT
4	AIR-CONDITIONING COMPRESSOR
5	AIR-CONDITIONING COMPRESSOR SENSOR
6	SPARK ADVANCE VARIATOR BULB
7	TEMPERATURE SENSOR FOR COLD STARTING
8	ENGINE OIL PRESSURE SENSOR
9	ENGINE STOP SOLENOID
10	SENSOR FOR HIGH TEMPERATURE AND GAUGE
11	ALTERNATOR
12	STARTER
13	12V BATTERY
14	STARTING CONTROL RELAY
15	MAXIFUSE FOR SYSTEM PROTECTION
16	SENSOR DETECTING WATER IN PRE-FILTER
17	MAXIFUSE FOR RADIATOR ELECTRIC FAN PROTECTION
18	ACCELERATOR LIMIT SWITCH RELAY
19	MAXIFUSE FOR FUSE BOX SUPPLY PROTECTION
20	ACCELERATOR LIMIT SWITCH RELAY
21	ACCELERATOR
22	18-PIN CONNECTOR, STEERING COLUMN LINE CONNECTION

	Colours
A	ORANGE
B	WHITE
C	PINK
D	GREY
E	GREEN
F	BLUE
G	YELLOW
H	SKY BLUE
M	BROWN
N	BLACK
R	RED
V	PURPLE

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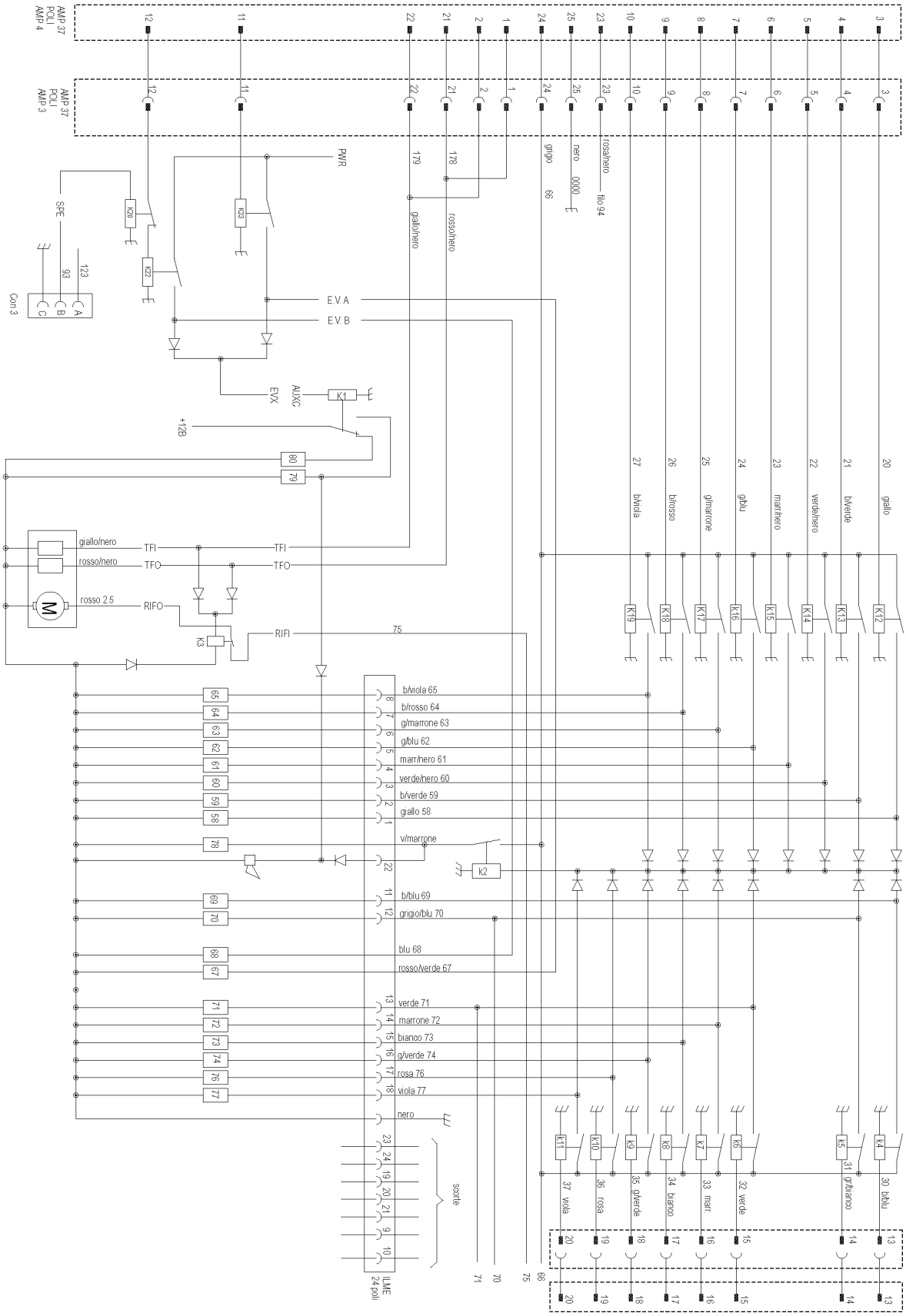
WIRING DIAGRAM OF CABIN LINE



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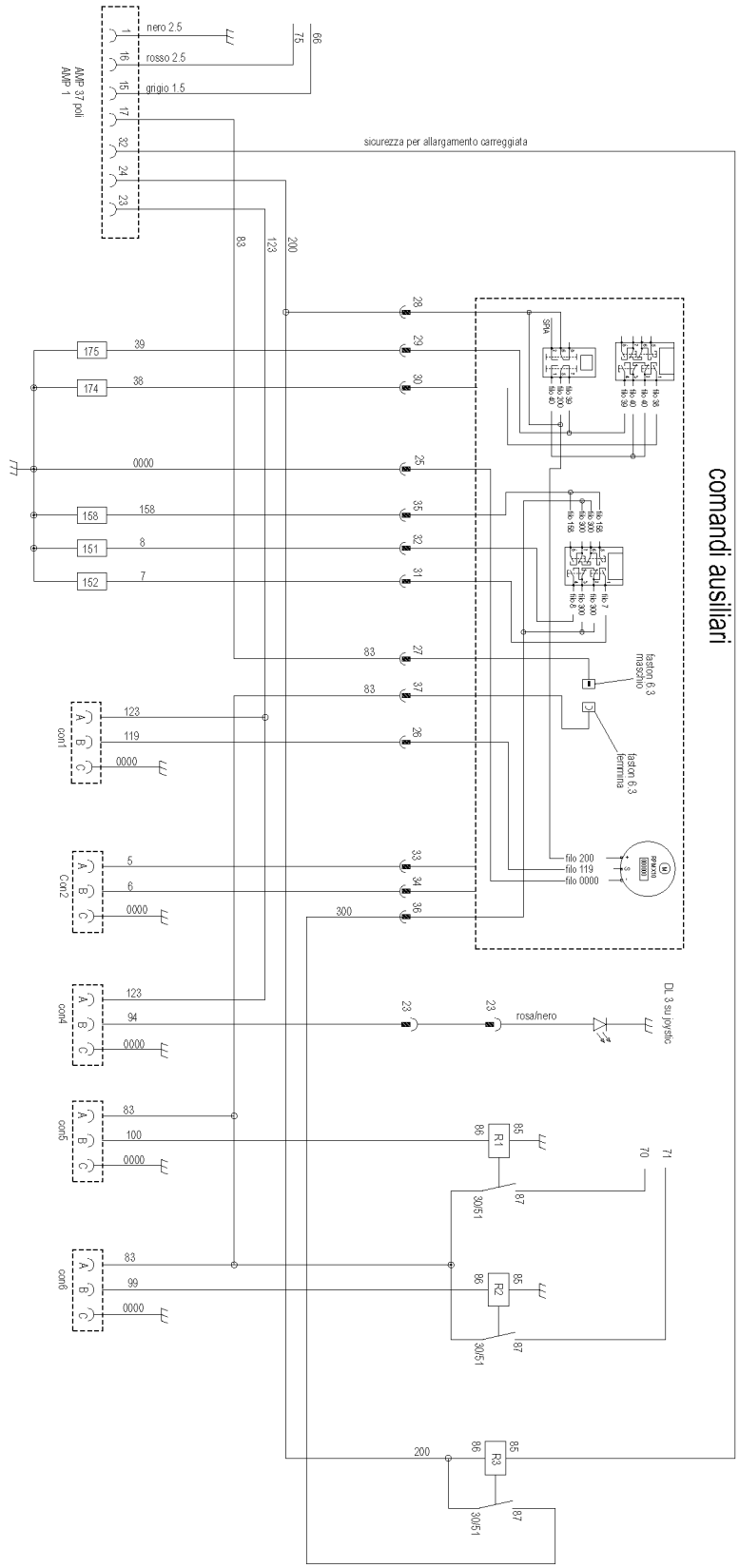

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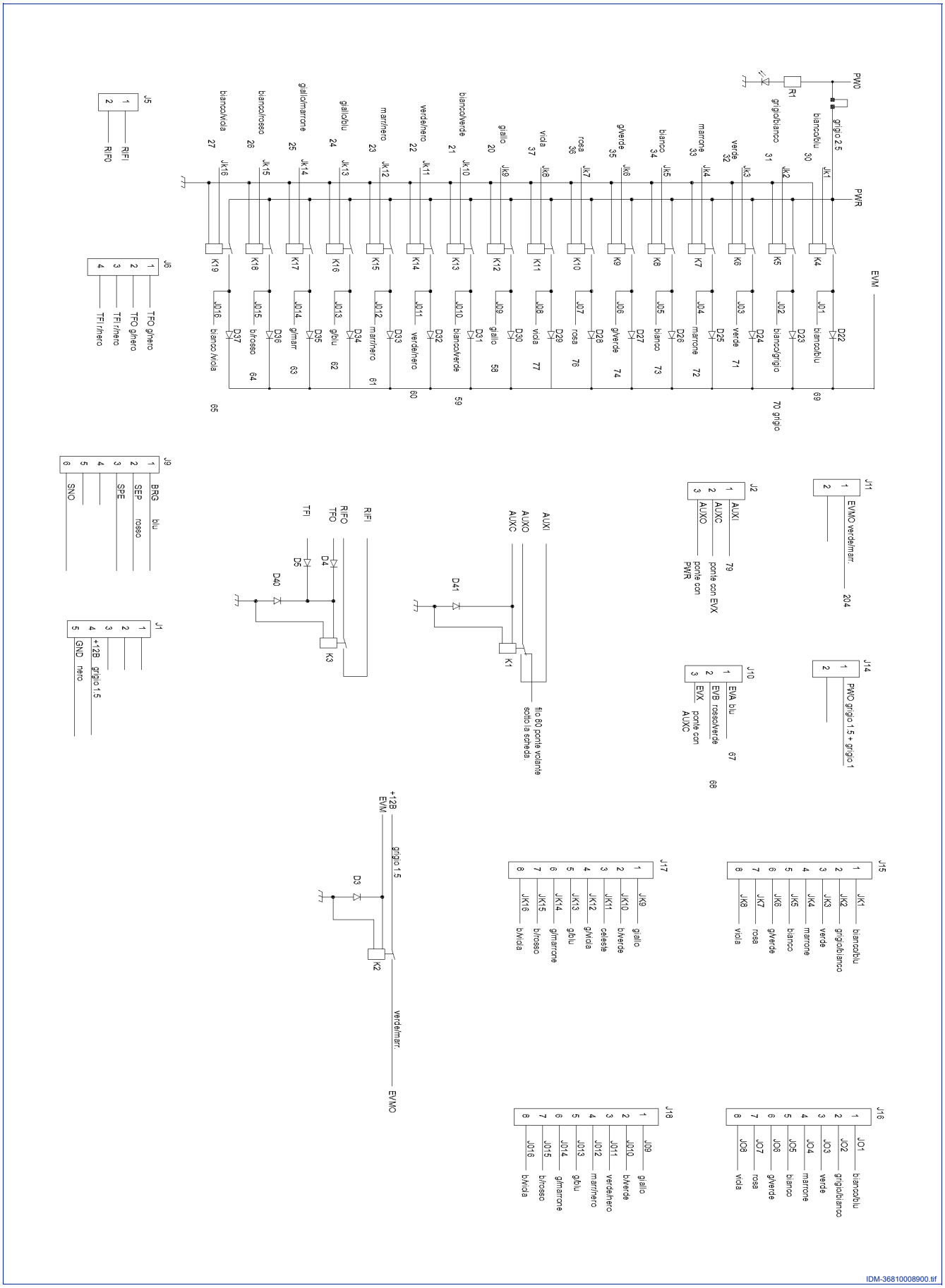

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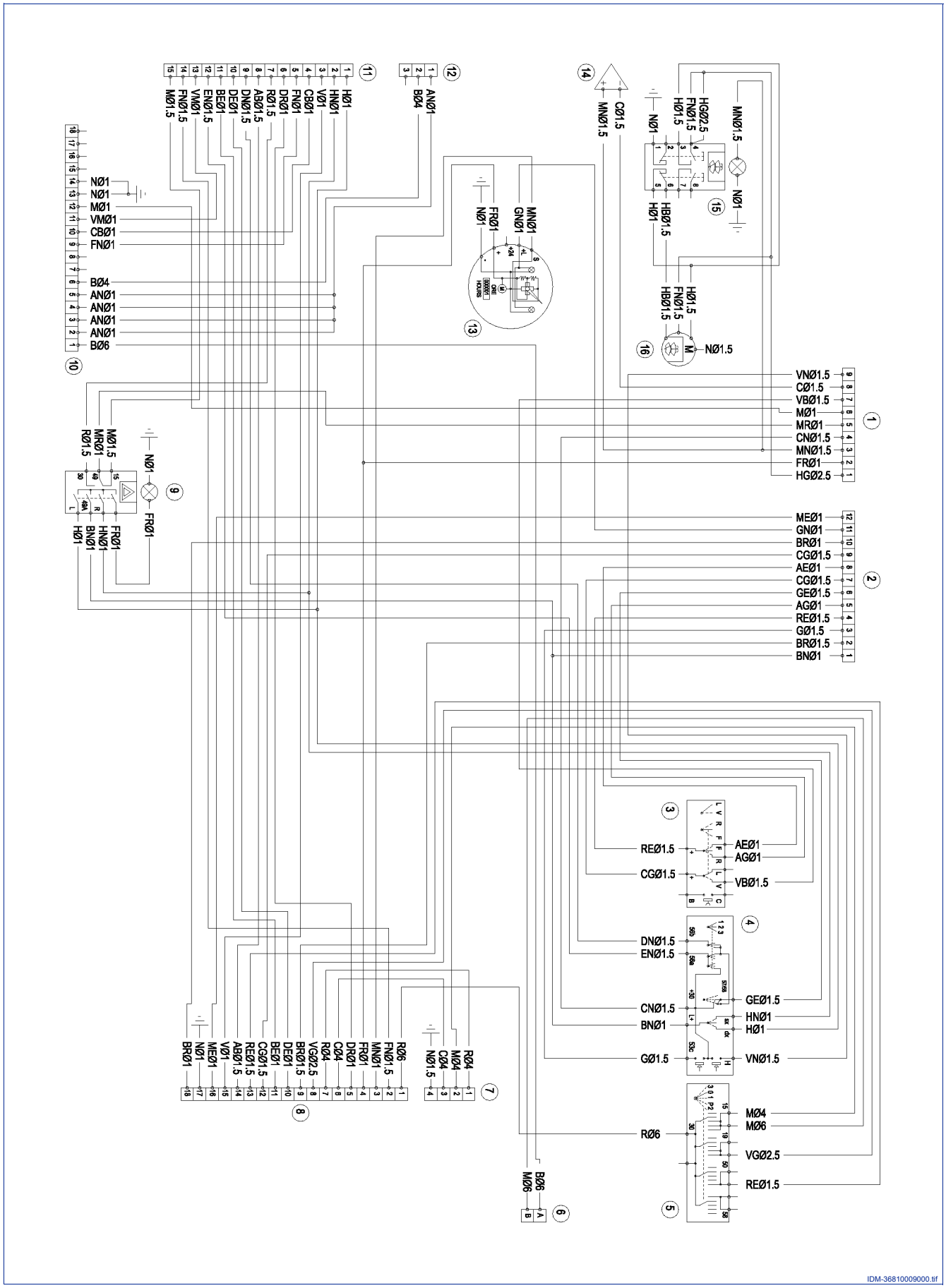
STEERING COLUMN ELECTRICAL SYSTEM DIAGRAM



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Ref.	Description
1	BLACK 9-WAY M CONNECTOR, FUSE LINE CONNECTION
2	BLACK 12-WAY M CONNECTOR, FUSE LINE CONNECTION
3	STEERING COMMAND SWITCH
4	SWITCH FOR LIGHTS-DIRECTION INDICATORS-HORN
5	IGNITION KEY SWITCH
6	POWER 2-WAY CONNECTOR, FUSE LINE CONNECTION
7	POWER 4-WAY M GIANT CONNECTOR, FUSE LINE CONNECTION
8	18-PIN PLUG, MOTOR LINE CONNECTION
9	DIRECTION INDICATOR EMERGENCY SWITCH
10	RED 18-PIN PLUG, MOTOR LINE CONNECTION
11	BLACK 15-WAY M CONNECTOR, FUSE LINE CONNECTION
12	3-WAY M CONNECTOR, FUSE LINE CONNECTION
13	TRACTOR METER
14	BUZZER
15	WINDSCREEN WIPER SWITCH
16	WINDSCREEN WIPER MOTOR

	Colours
A	ORANGE
B	WHITE
C	PINK
D	GREY
E	GREEN
F	BLUE
G	YELLOW
H	SKY BLUE
M	BROWN
N	BLACK
R	RED
V	PURPLE

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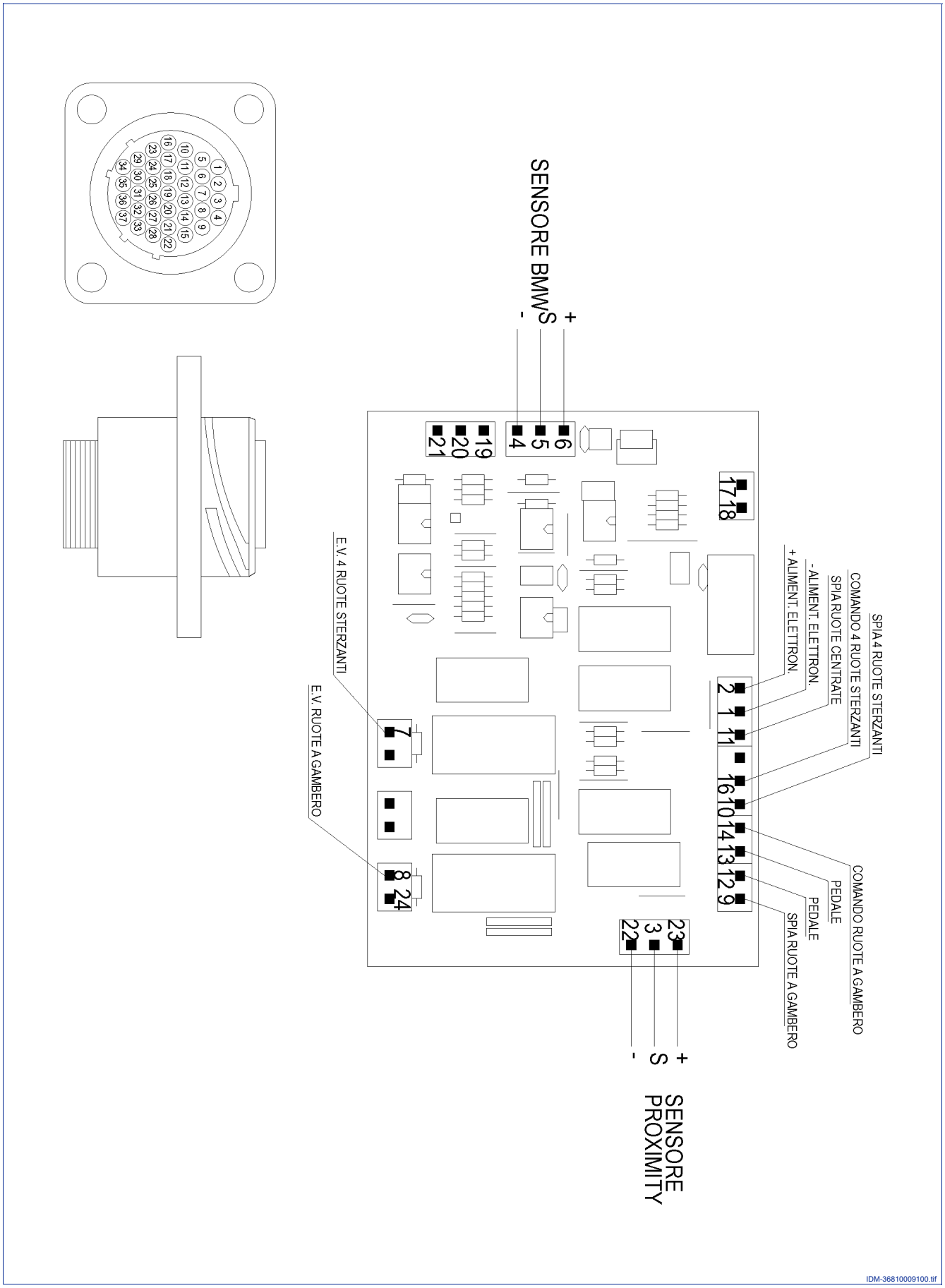
WIRING DIAGRAM FOR ANALOG STEERING CARD



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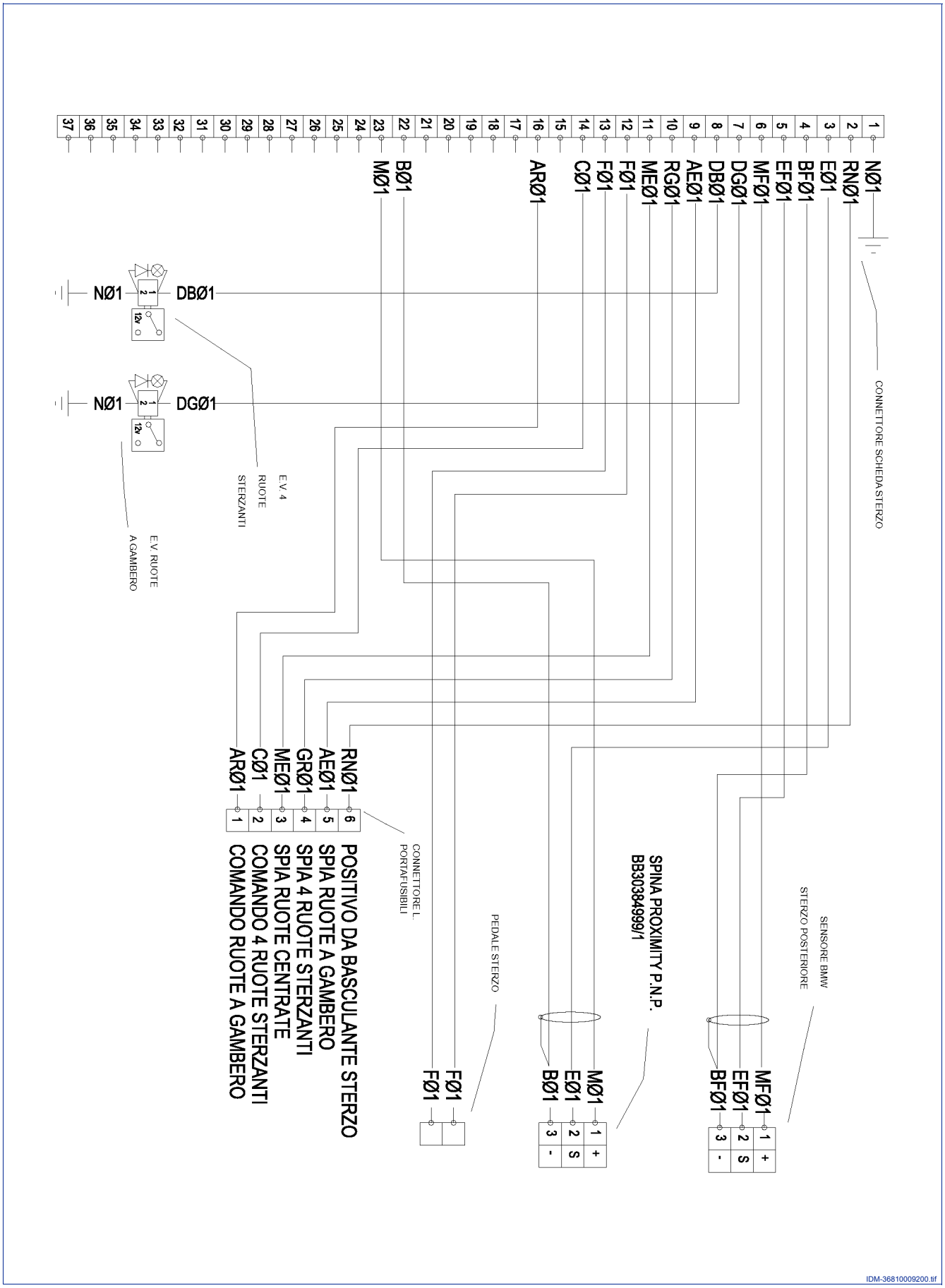
WIRING DIAGRAM FOR STEERING LINE


37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
MØ1 BØ1 ARØ1 CØ1 FØ1 FØ1 MEØ1 RGØ1 AEØ1 DBØ1 DGØ1 MFØ1 EFØ1 BFØ1 EØ1 RNØ1 NØ1
CONNETTORE SCHEDA STERZO
NØ1 DBØ1
NØ1 DGØ1
12v
E.V. 4 RUOTE STERZANTI
E.V. RUOTE A GAMBERO
RNØ1 AEØ1 GRØ1 MEØ1 CØ1 ARØ1
1 2 3 4 5 6
CONNETTORE L PORTAFUSIBILI
POSITIVO DA BASCULANTE STERZO
SPIA RUOTE A GAMBERO
SPIA 4 RUOTE STERZANTI
SPIA RUOTE CENTRATE
COMANDO 4 RUOTE STERZANTI
COMANDO RUOTE A GAMBERO
FØ1 FØ1
PEDALE STERZO
BØ1 EØ1 MØ1
3 2 1
- S +
SPINA PROXIMITY P.N.P. BB30384999/1
BFØ1 EFØ1 MFØ1
SENSORE BMW STERZO POSTERIORE
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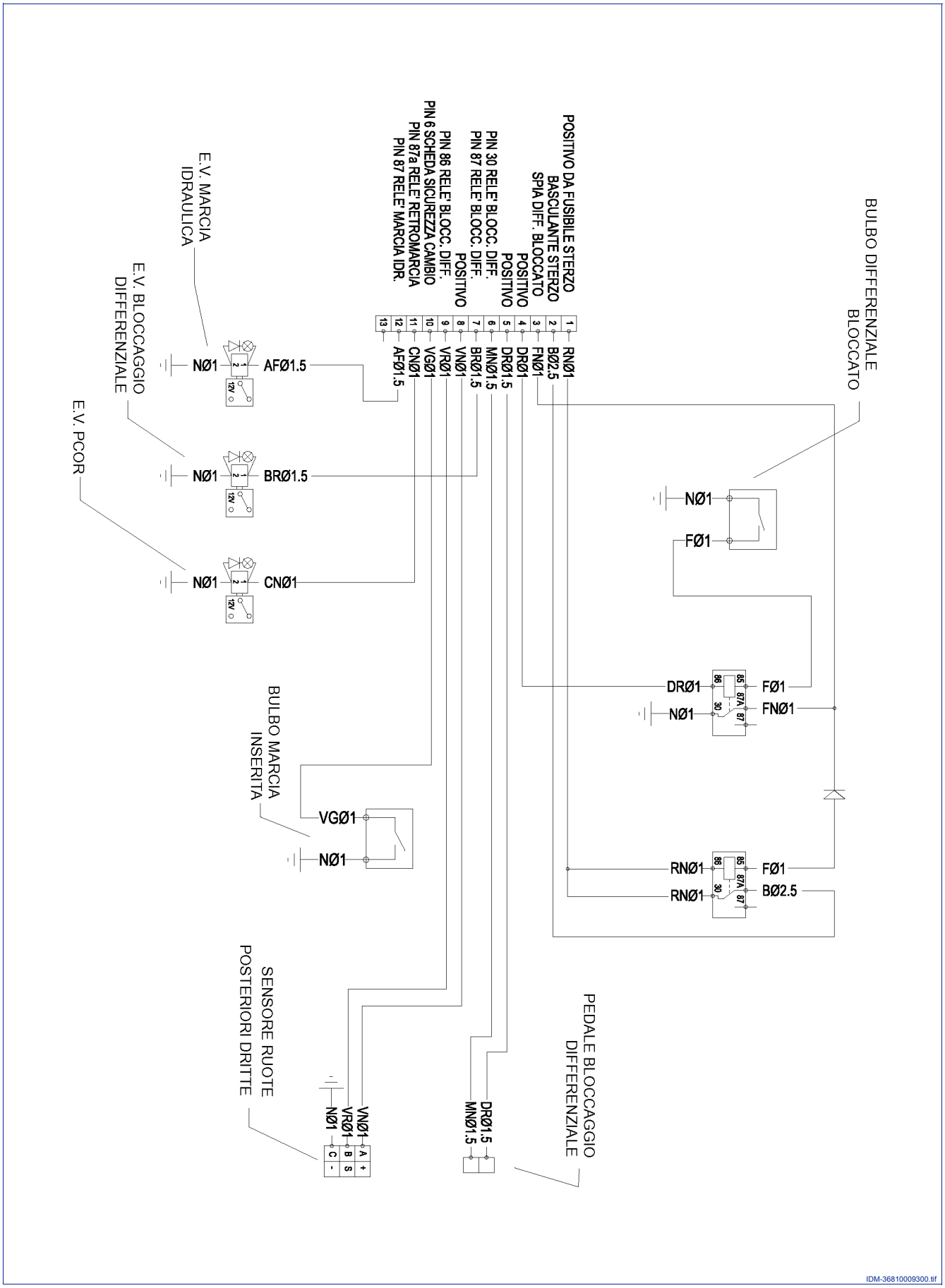
WIRING DIAGRAM FOR DIFFERENTIAL GEAR LOCKING



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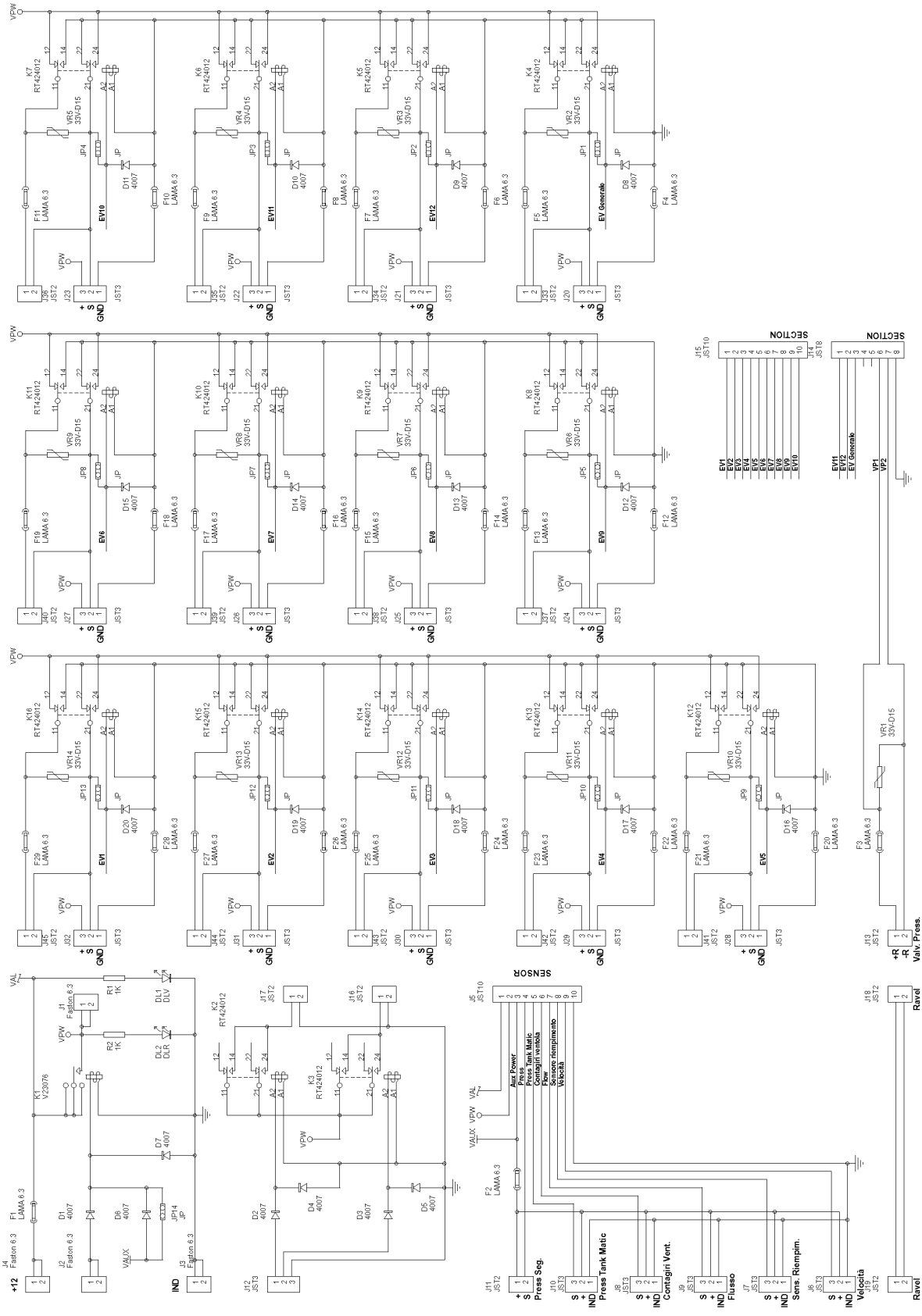
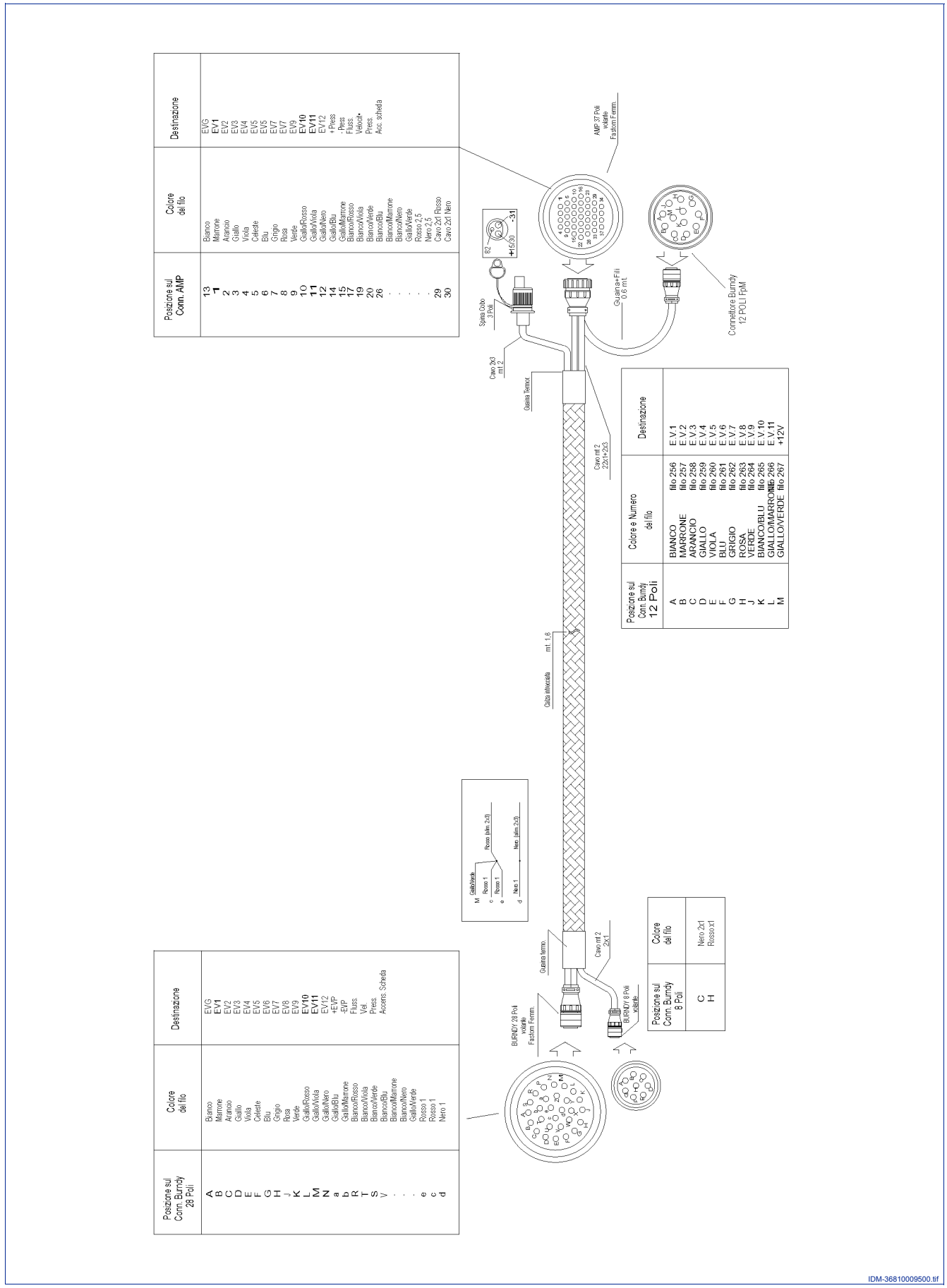
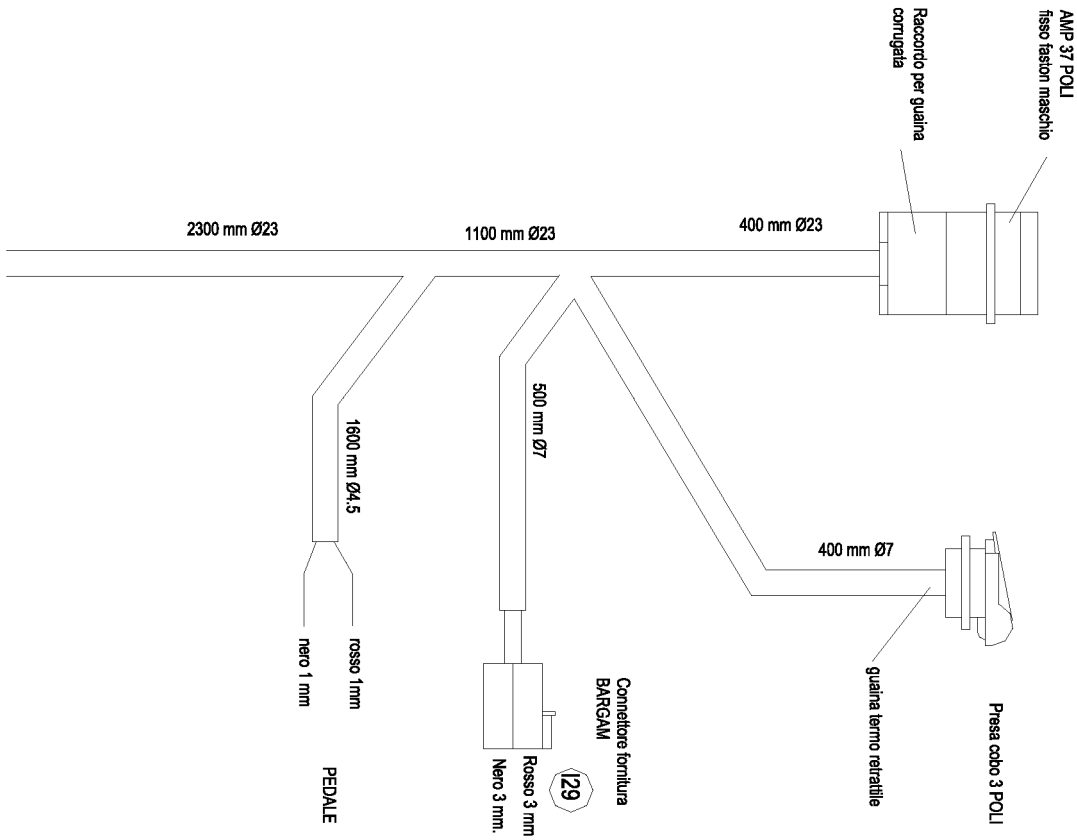
SWITCHER ELECTRICAL SYSTEM DIAGRAM



WATER DISTRIBUTION ELECTRICAL SYSTEM DIAGRAM





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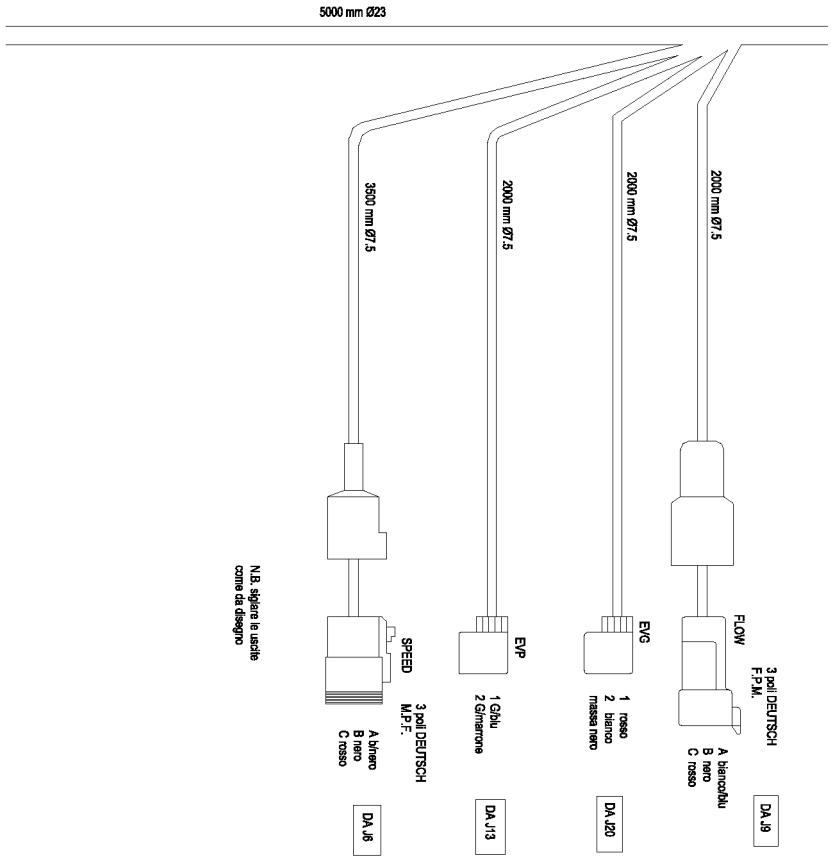

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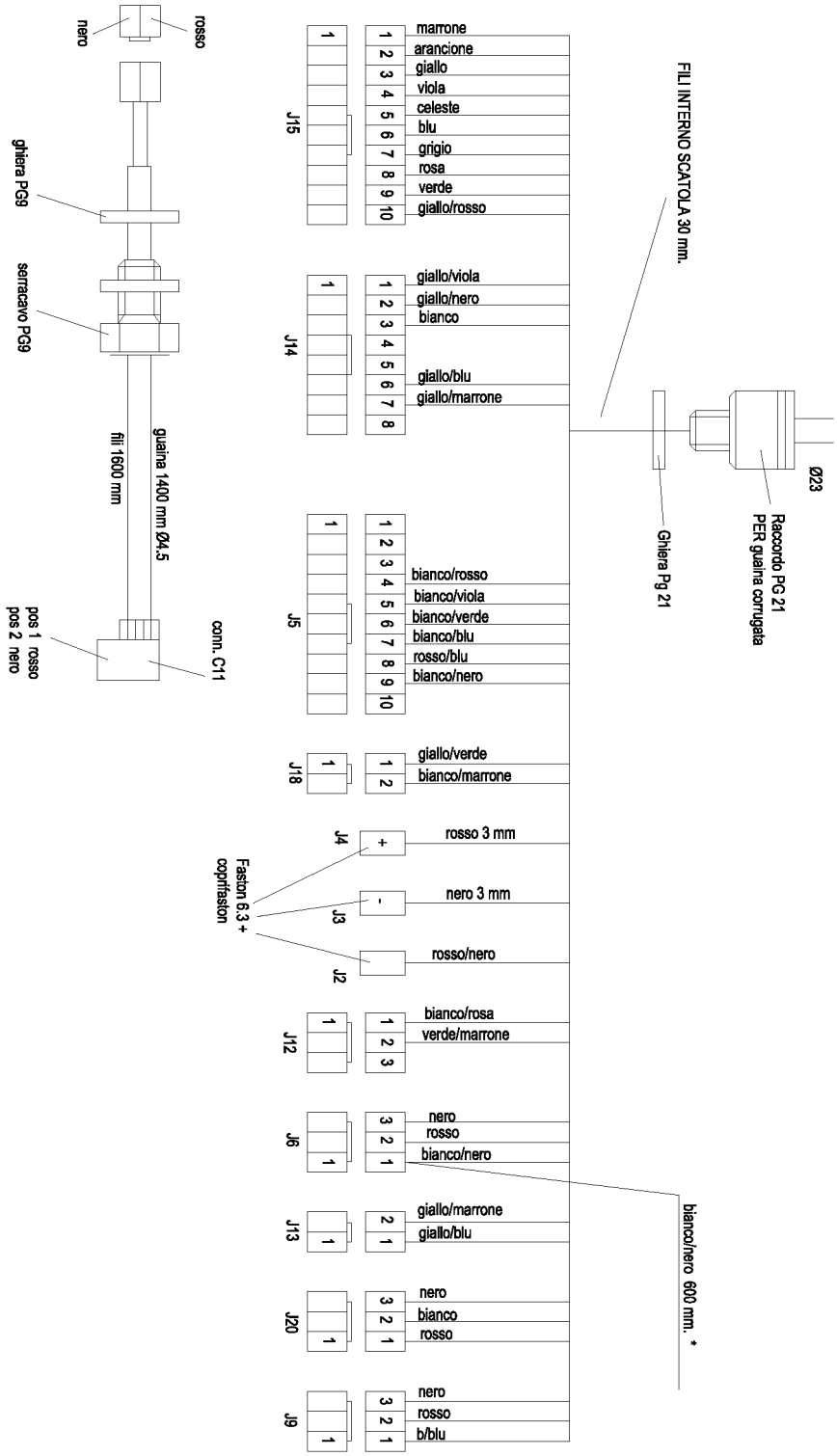

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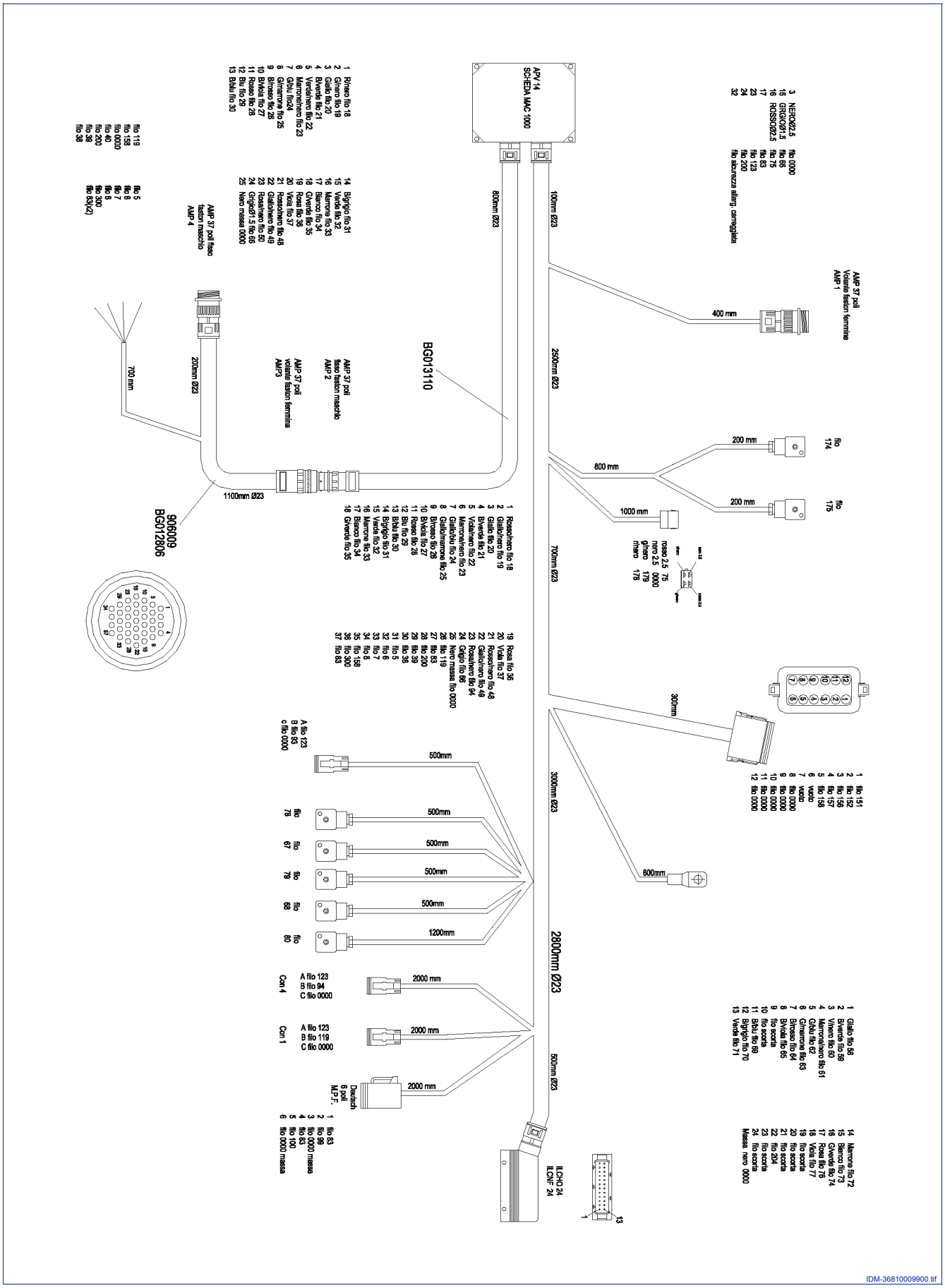
HYDRAULIC CONTROL LINE ELECTRICAL SYSTEM DIAGRAM (BAR AND TRACK)



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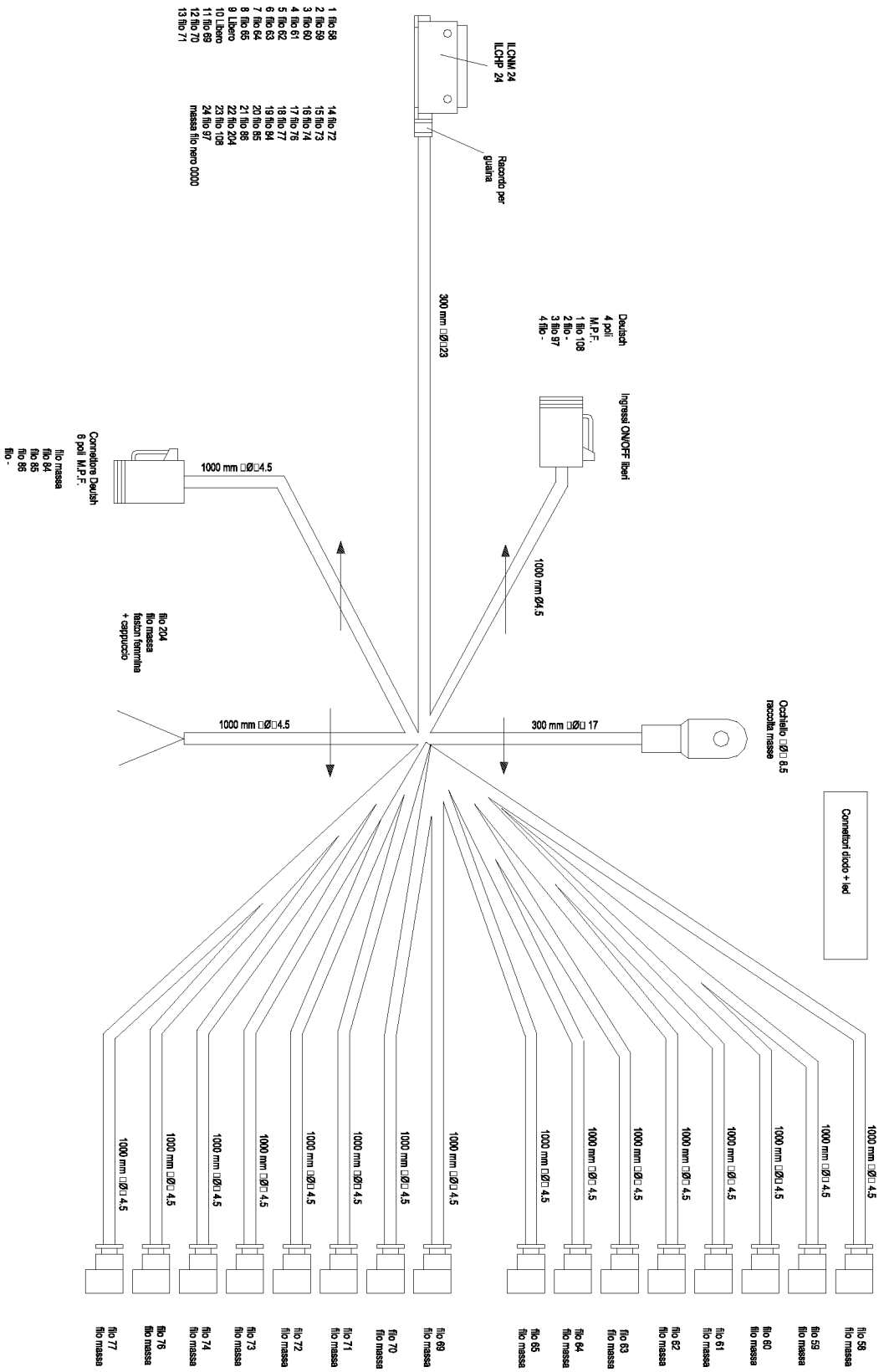

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Description	N. Wire
S.V. for right tip folding	58
S.V. for right tip unfolding	59
S.V. for left tip folding	60
S.V. for left tip unfolding	61
S.V. for right arm folding	62
S.V. for right arm unfolding	63
S.V. for left arm folding	64
S.V. for left arm unfolding	65
positive (+15)	66
S.V. for boom lifting and overall upstroke	67
S.V. for boom downstroke	68
S.V. for right arm clockwise levelling	69
S.V. for right arm counter-clockwise levelling	70
S.V. for left arm clockwise levelling	71
S.V. for left arm counter-clockwise levelling	72
S.V. for boom clockwise levelling	73
S.V. for boom counter-clockwise levelling	74
positive (+15)	75
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S.V. for boom unlock	77
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right arm clockwise levelling command	30
right arm counter-clowckwise levelling command	31
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positive	123
positive	200
ground	0000

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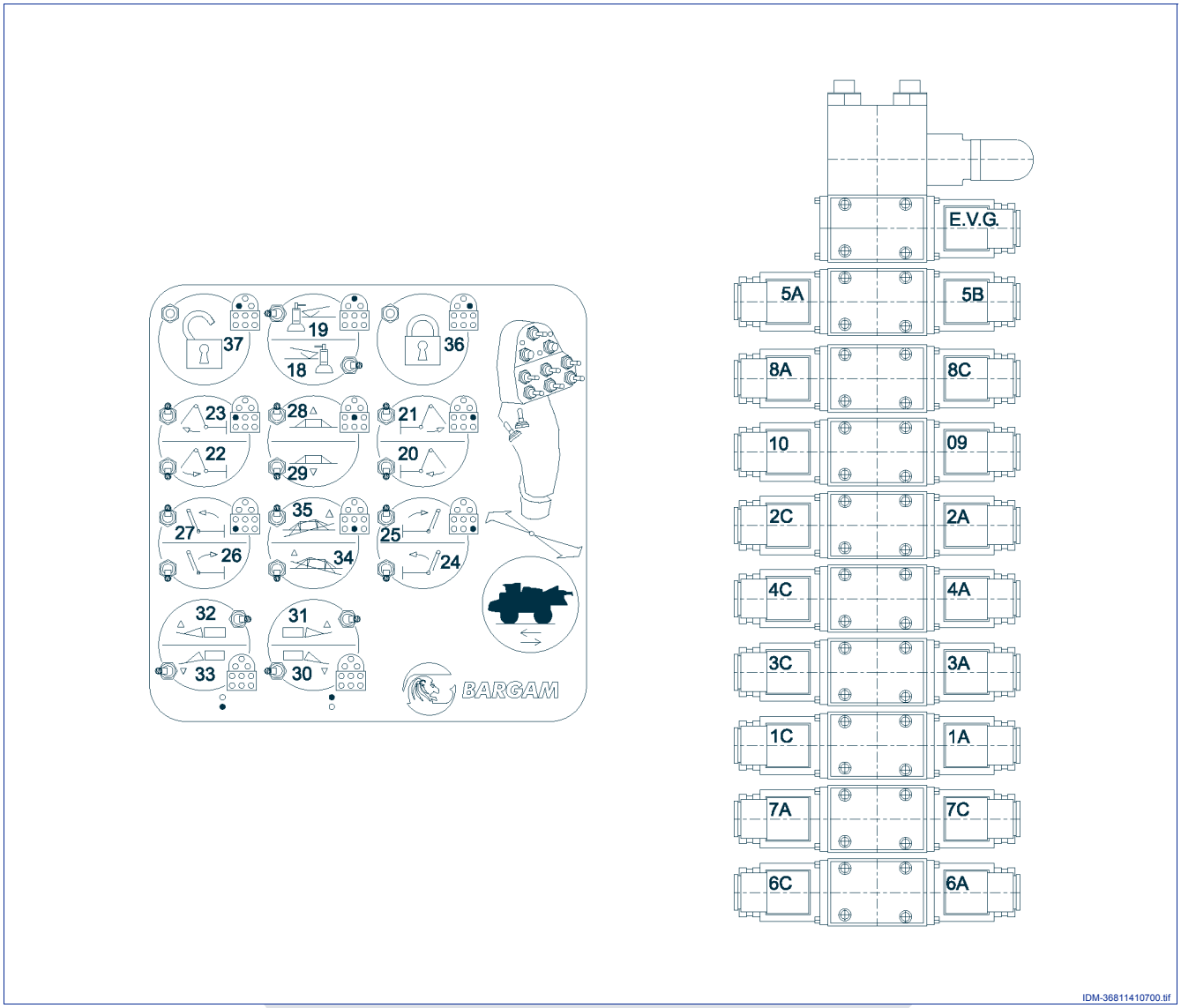
BOOM CONTROL WIRING DIAGRAM



Pin no.	Colour	Description	Ref.	Colours of solenoid valve wires	
1	Yellow-Black	RH foam marker control	18	CX3	Red-Black
2	Red-Black	LH foam marker control	19	CX3	Yellow-Black
3	Yellow	RH tip closing	20	1A	Yellow
4	White-Green	RH tip opening	21	1C	White-Green
5	Green-Black	LH tip closing	22	2A	Light blue
6	Brown-Black	LH tip opening	23	2C	Yellow-Violet
7	Yellow-Blue	RH arm folding	24	3A	Yellow-Blue
8	Brown-Yellow	RH arm unfolding	25	3C	Brown-Yellow
9	White-Red	LH arm folding	26	4A	White-Red

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Pin no.	Colour	Description	Ref.	Colours of solenoid valve wires	
10	Violet-White	LH arm unfolding	27	4C	Violet-White
11	Blue	Boom lifting control	28	5A/5C	Red-Green
12	Red	Boom lowering control	29	5B	Blue
13	Small grey	RH arm clockwise levelling	30	6A	White-Blue
14	White-Blue	RH arm counter clockwise levelling	31	6C	Grey
15	Light green	LH arm clockwise levelling	32	7A	Green
16	Brown	LH arm counter clockwise levelling	33	7C	Brown
17	White	Boom clockwise levelling	34	8A	White
18	Yellow-Green	Boom counter clockwise lev-elling	35	8C	Yellow-Green
19	Pink	Boom locking	36	9	Pink
20	Violet	Boom release	37	10	Violet
21	Red-Green	RH foam marker indicator light		-	-
22	Orange	LH foam marker indicator light		-	-
23	Pink-Black	Boom locking indicator light		CX8	White-Pink
24	Grey	Supply +		CX2	GreyØ1.5
25	Black	Supply -		CX2	Black
-	-	General		E.V.G.	Brown-Green

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SELF-PROPELLED SPRAYER (GRIMPEUR 2500 - 3000 MC)

user manual

Serial number

Edition **0**
12-2005

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IMPORTANT SAFETY INFORMATION

The information in this booklet concerns the functional aspects of the machine operator unit. Nevertheless, in order to protect people from risks, please read carefully the general safety regulations in Booklet 1 and those marked by the special symbols. We remind you that caution is essential; safety is also in the hands af all the operators driving the tractor.

TECHNICAL INFORMATION

OPERATING PRINCIPLE

The main steps of the operating principle are indicated below.

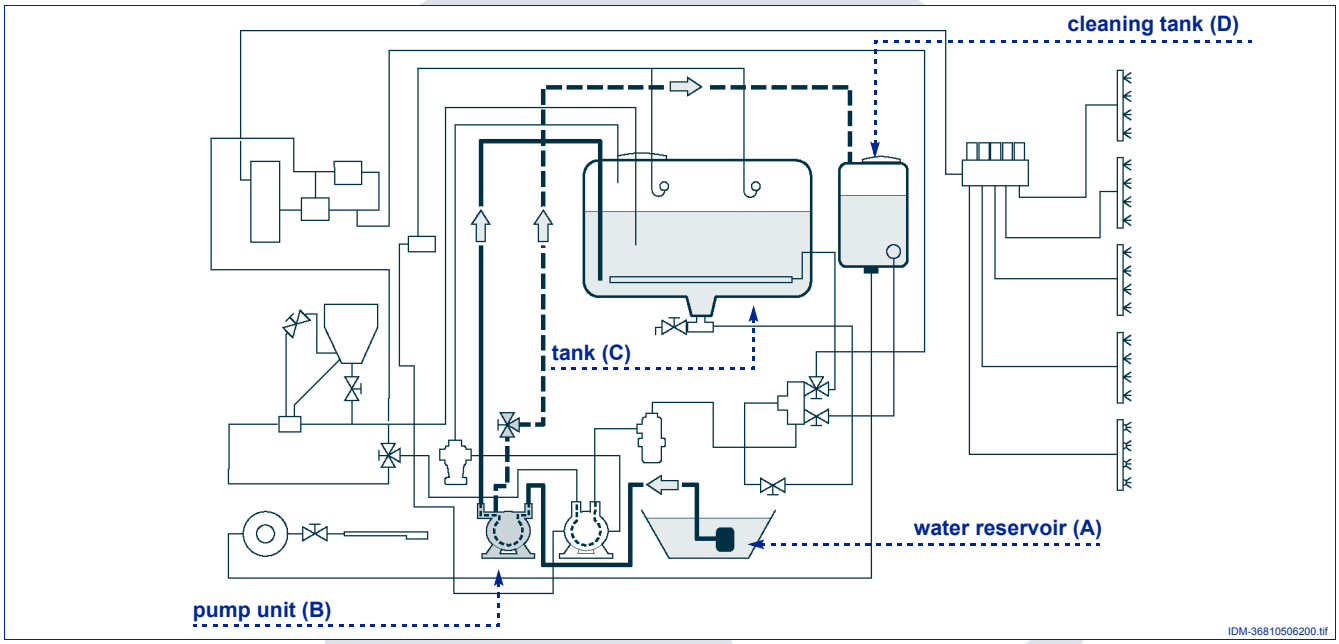
– Tank filling
– Product mixing
– Product spraying
– System cleaning

Important

The figures represent the operating principle. For further details, consult the specific diagram of the system for the machine you own.

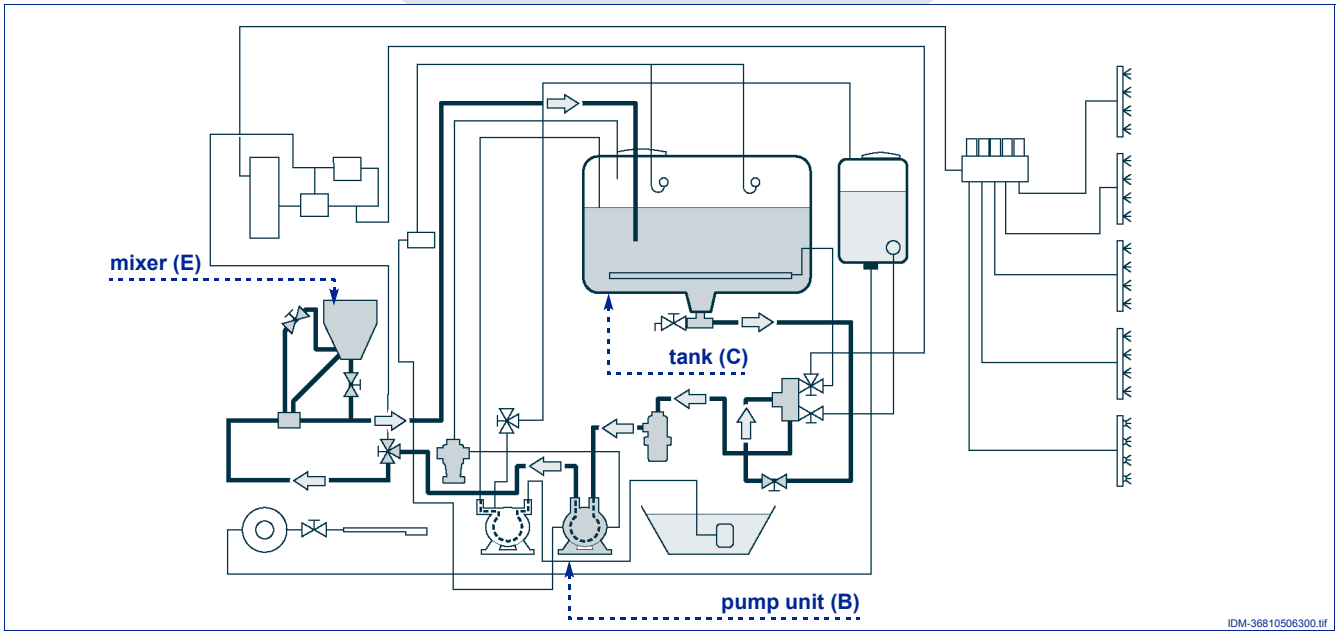
I) Tank filling

The water is drawn from the water reservoir **(A)** through the intake of the pump unit **(B)** and conveyed to the tank **(C)**. If necessary, the water supply to the system cleaning tank **(D)** can be opened to fill the latter.



II) Product mixing

The water is drawn from the tank **(C)** through the intake of the pump unit **(B)** and conveyed to the mixer **(E)** to be mixed with the chemical. The mixed liquid returns to the tank **(C)**.



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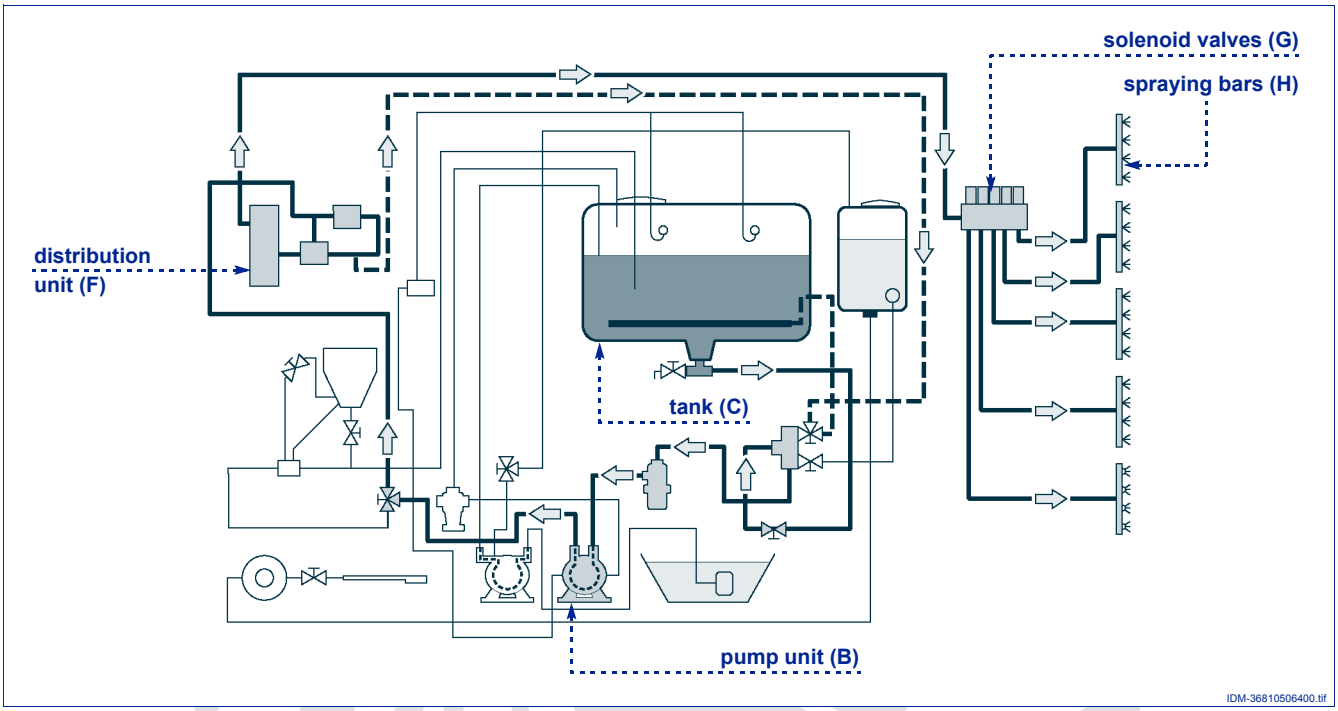
III) Product spraying

The mixed liquid is drawn from the tank **(C)** through the intake of the pump unit **(B)** and conveyed, under pressure, to the electrical distribution unit **(F)** and to the solenoid valve unit **(G)**. The liquid is sent from the solenoid valve unit **(G)** to the relative spraying bars **(H)**; any excess liquid returns to the pump unit and is recycled.

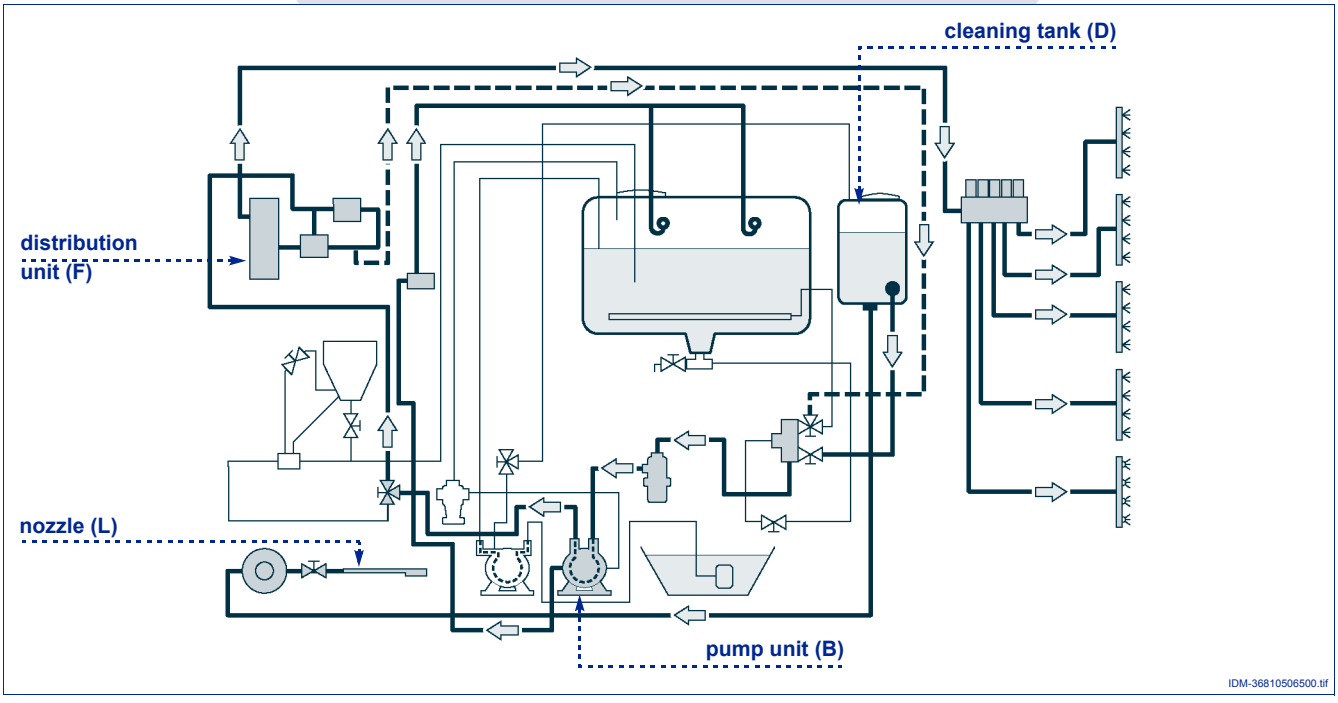


IV) System cleaning

The clean water is drawn from the tank **(D)** through the intake of the pump unit **(B)** and conveyed, under pressure, to the electrical distribution unit **(F)** to then branch out into the various pipes, the tank and the spraying bars, to clean the system thoroughly and remove any chemical residue. The water is also conveyed to the nozzle **(L)**, to clean the exterior of the entire equipment.

Important

The system is fitted with a range of filters, manifolds, valves and cocks to modify the course of the liquid depending on the operating requirements stated in the instructions for use.



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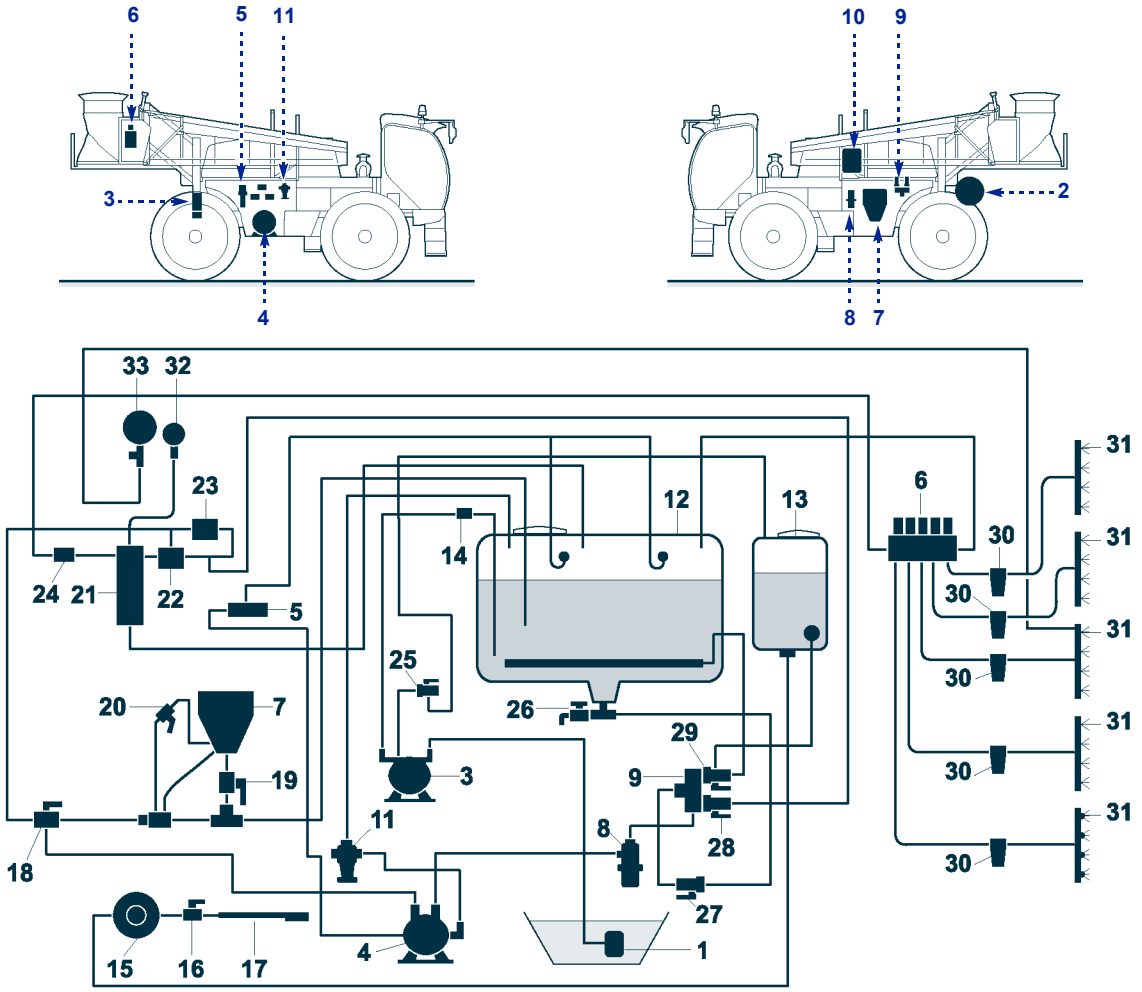
Water system diagram



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Legend

1 - Intake filter (filling)	**12 -** Product tank	**23 -** Pressure regulating motor
2 - Hose winder (filling)	**13 -** Clear water tank (system cleaning)	**24 -** Flow meter
3 - Centrifugal pump (filling)	**14 -** Load litre counter (filling)	**25 -** Clear water tank filling cock
4 - Diaphragm pump	**15 -** Hose winder for equipment cleaning	**26 -** Tank draining cock
5 - Cock unit	**16 -** Equipment cleaning cock	**27 -** Three-way ball valve
6 - Solenoid valve unit	**17 -** Equipment cleaning nozzle	**28 -** Clear water intake cock
7 - Mixer	**18 -** Three-way ball valve	**29 -** Three-way ball valve
8 - Intake filter	**19 -** Valve for transfer	**30 -** In-line spraying filters
9 - Manifold	**20 -** Gun valve	**31 -** Stainless steel pipes
10 - Hand-washing tank	**21 -** In-line filter on control unit	**32 -** Operating pressure gauge
11 - Maximum pressure valve	**22 -** Main engine	**33 -** Working pressure gauge

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IMPROPER USE

Danger - Warning

The use of products which are not specifically authorised for crop spraying is strictly prohibited. Read the instructions on using spray chemicals provided by the manufacturer on the packet carefully.

- Observe the regulations and applicable laws in force on the subject of spraying chemicals so as not to damage any flora and fauna. Pay particular attention to food crops destined for human and animal consumption.
- During the preparation and use of all chemicals, appropriate measures must be taken in order to avoid placing people's health and safety at risk and damaging the environment.
- Any chemical residue must be disposed of in accordance with the applicable waste disposal regulations in force.
- When operating the machine, only use appropriate protective clothing and/or accessories as indicated in the instructions for use provided by the manufacturer and as provided for by the current regulations in terms of safety in the workplace.
- Prevent strangers from approaching the working area when the machine is in use. Should it become necessary, stop it immediately and make the people found in the risk area move away.
- Do not disconnect any hoses which contain chemicals while the system is under pressure, to avoid any risk of unforeseen contamination. When replacing the hoses, only use original spare parts.

LIMITATIONS OF PRODUCT USE

The manufacturer states that no notifications have been made as to any reactions of machine components as a result of the use of authorised chemicals. The manufacturer also declares not to be aware of any regulations that impose the performance of specific tests to evaluate the reaction of the machines to authorised chemicals for crop spraying.

RESIDUAL VOLUME

The volume of liquid that cannot be sprayed correctly (technical residue) is not in excess of 0,5% of the nominal value plus 2 litres for each metre of the bar.

The table below features the values for the technical residue, soluble and non.

GRIMPEUR 2500 MC (Nominal capacity: 2500 litres / Real capacity: 2800 litres) *GRIMPEUR 3000 MC (Nominal capacity: 3000 litres / Real capacity: 3300 litres)*			
Bar size (in metres)	***Soluble * (litres)***	***Non soluble ** (litres)***	***Total (litres)***
16	24,3	16,7	41
18	24,3	19,5	43,8
20	24,3	21,1	45,4
21	24,3	21,7	46
24	24,3	24,8	49,1

Values taken with an AR250 pump

(*) Soluble technical residue during the cleaning phase

(**) Non-soluble technical residue during the cleaning phase

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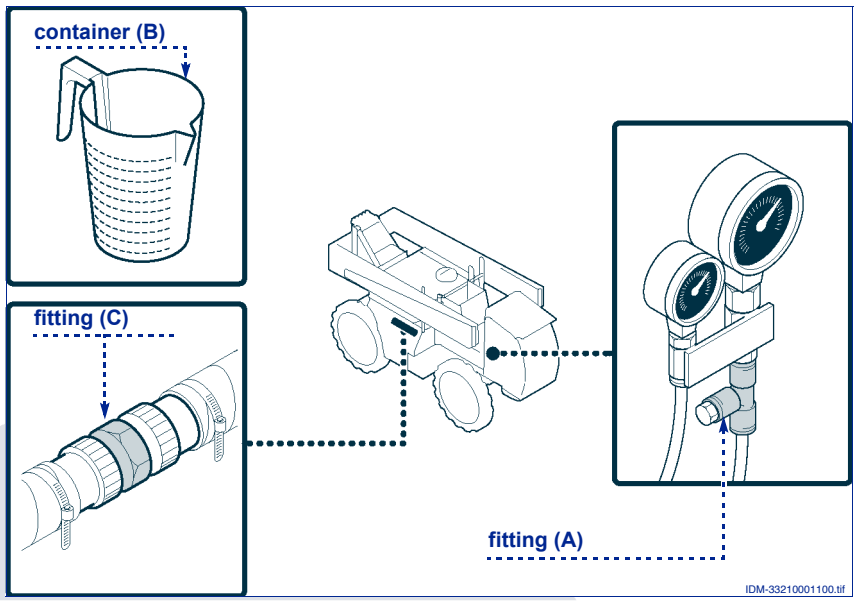
MACHINE OPERATION CONTROL DEVICES

The machine is supplied with devices to check the main functions.

A) Fitting for the attachment of the pressure control pressure gauge 1/4" Gas female).

B) Graduated container for the nozzle flow rate control (upon request).

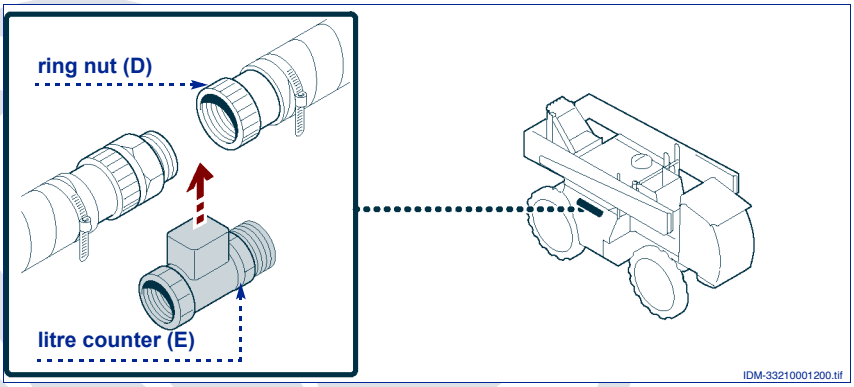
C) 1" Gas fitting for the attachment of the pump litre counter. It allows for the installation of a flow meter to check the flow rate without damaging the hoses.



Pump litre counter installation

1 - Unscrew the ring nut **(D)** to disconnect the hose.

2 - Install the litre counter **(E)** and reconnect the hose.



Nozzle spraying check

Any differences between the product to be sprayed and the product actually sprayed can derive from:

– incorrect adjustment of the forward speed of the tractor (see page 12);
– incorrect pressure adjustment (vedi pag. 12);
– nozzle wear.

To ascertain the cause of the nozzle wear, perform the check as follows:

Danger - Warning

Use clean water.

1 - Start up the water distribution.

2 - Position a graduated container beneath the nozzle being checked.

3 - Check the actual quantity of product distributed and repeat the operation on at least three nozzles.

Important

This type of check should be performed the first time the equipment is used and then once a year or every time the nozzles are found to be worn.

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INFORMATION ABOUT ADJUSTMENTS

INSTRUCTIONS FOR ADJUSTMENTS

Important

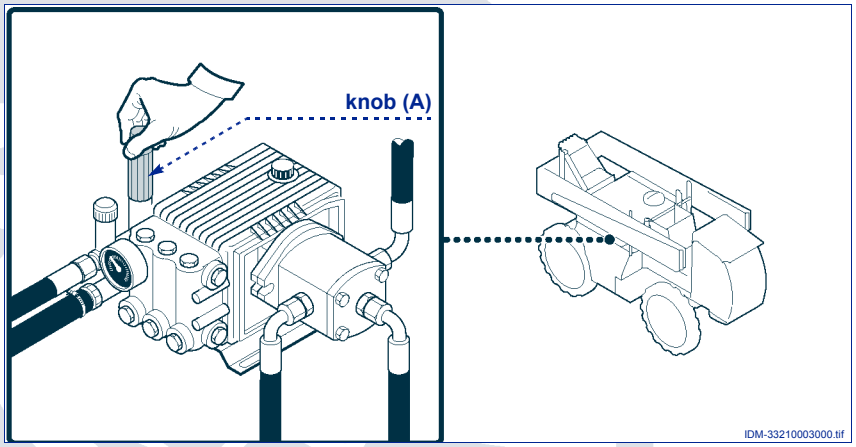
Before carrying out any setting or adjustment, activate all the safety devices required and consider whether it may be necessary to provide proper information to the operators and to the staff working near the machine. In particular, provide proper signs in the areas surrounding the machine and do not allow anyone to access any devices that, when activated, may cause unexpected dangerous conditions, resulting in damages to personal safety and health.

WATER JET PUMP ADJUSTMENT

Use the knob **(A)** to adjust the pressure of the water jet pump.

Important

Use the water jet pump with the engine at minimum speed (800-1000 rpm).



WATER DISTRIBUTION PUMP ADJUSTMENT

Important

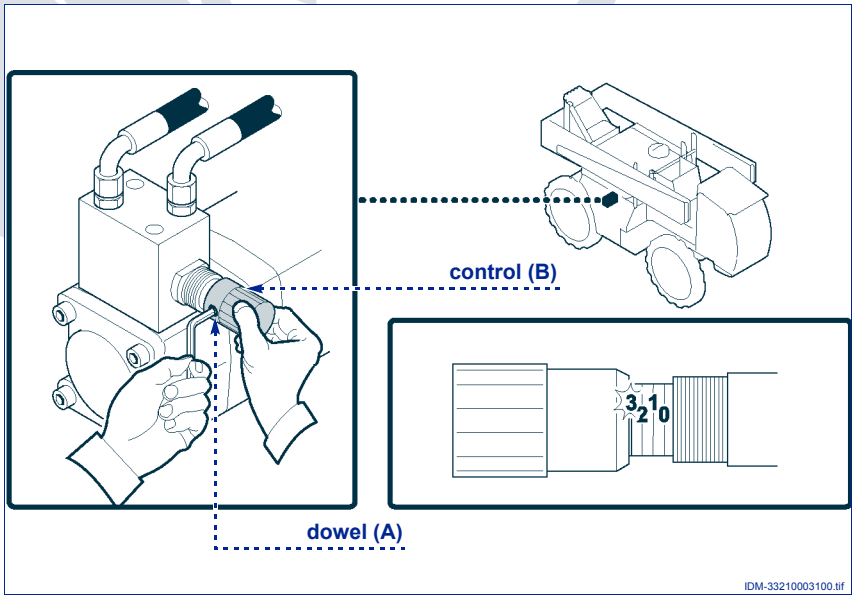
The number of pump revolutions is already adjusted by the manufacturer.

In the event of a fault, to bring the number of pump revolutions back to the optimum value, proceed as illustrated.

1 - Unscrew the dowel **(A)**.

2 - To adjust the speed of the hydraulic pump, completely screw and unscrew knob **(B)** by 3 turns in case of AR 250 pump or by 2 1/2 turns in case of AR 280 pump (see figure).

3 - Screw the dowel back on **(A)**.



Caution - Precaution

The pump is adjusted by the manufacturer to operate at 530 rpm with the engine operating at 2000 rpm. In the event of a pump fault, always contact an authorised workshop for repair.

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USER INFORMATION

INSTRUCTIONS FOR USE AND OPERATION

Important

The incidence of accidents related to the use of the machine depends on multiple factors that are not always easy to prevent and control. Some accidents may depend on unforeseeable environmental factors; others are caused by the behaviours of the staff using the machine. Apart from being authorised and properly informed, if necessary, when using the machine for the first time, operators must simulate some manoeuvres in order to get familiar with controls and main functions. Use the machine exclusively for the purpose intended by the manufacturer. Do not tamper with any device to obtain a different performance. Before using the machine, make sure that the safety devices are correctly installed and in perfect working conditions. Apart from complying with these requirements, operators must apply all safety regulations in force and carefully read the description of the various controls and the instructions on how to operate the machine.

USING THE FOUR WHEEL DRIVE

The activation of the “Four wheel drive” is necessary to facilitate the steering of the machine when the gear is being inverted and/or to avoid obstacles.
To activate the “Four wheel drive” mode, proceed as follows.

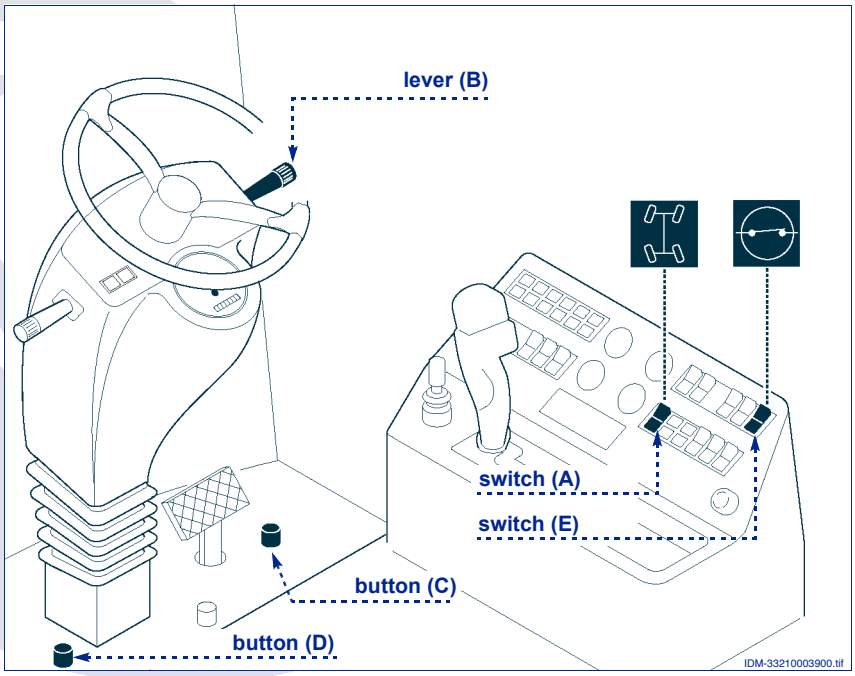
1 - Press the switches **(A-E)** to activate the functions of the lever **(B)**.

2 - Use the lever **(B)** to select the "Four wheel drive" mode (see "Control panel").

3 - When the **(C-D)** buttons are depressed to activate spraying, steering automatically operates in "Two steering wheels" mode.

4 - When spraying, press the **(C)** button (if required) for a temporary activation of the four steering wheels.

5 - When you have reached the end of the section to be sprayed, press the button **(D)** to deactivate the spraying; the four wheel drive mode is automatically reactivated.



Caution - Precaution

The "4 wheel drive" operation can be selected only when in first gear and with the 4 wheels aligned.

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TANK FILLING

For this operation follow the procedure below.

1 - Start the machine's engine.

2 - Use the selector **(A)** to put the hose winder in neutral.

3 - Pull the hose to unwind it.

4 - Position the filter **(B)** in the clean water drawing area (reservoir, river, canal, etc.).

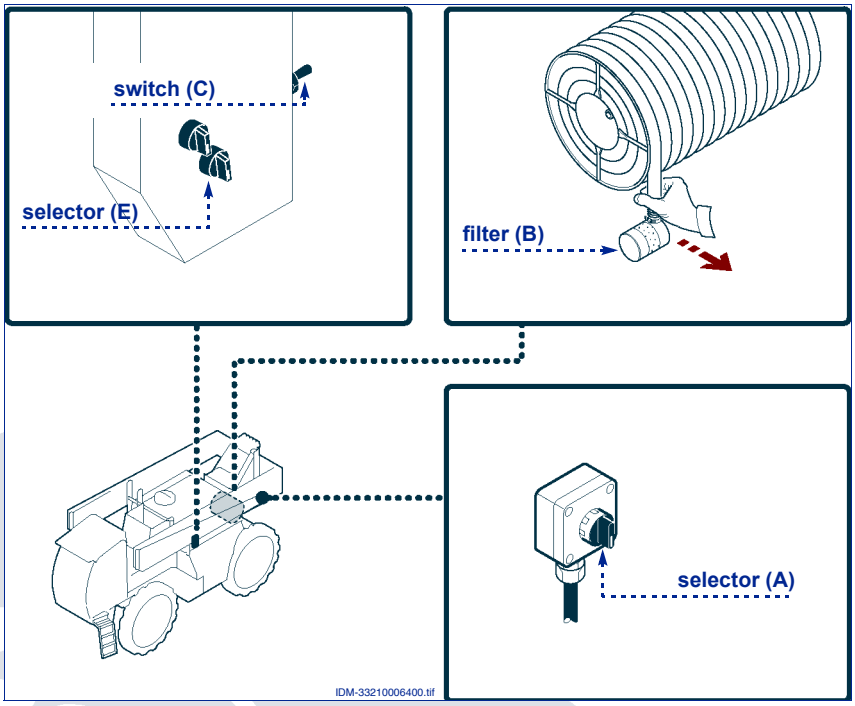
Note: if the machine is fitted with an electronic litre counter, consult the relevant instruction manual (see leaflet 14) before you fill the tank.

5 - Use switch **(C)** to set the motor to 1000 rpm.

Note: switch (C) is active only when the driver is not sitting on his/her seat

6 - Use the selector **(E)** to activate the centrifugal pump and deactivate it when the desired water level has been reached.

7 - Use the selector **(A)** to rewind the hose when the operation is complete.

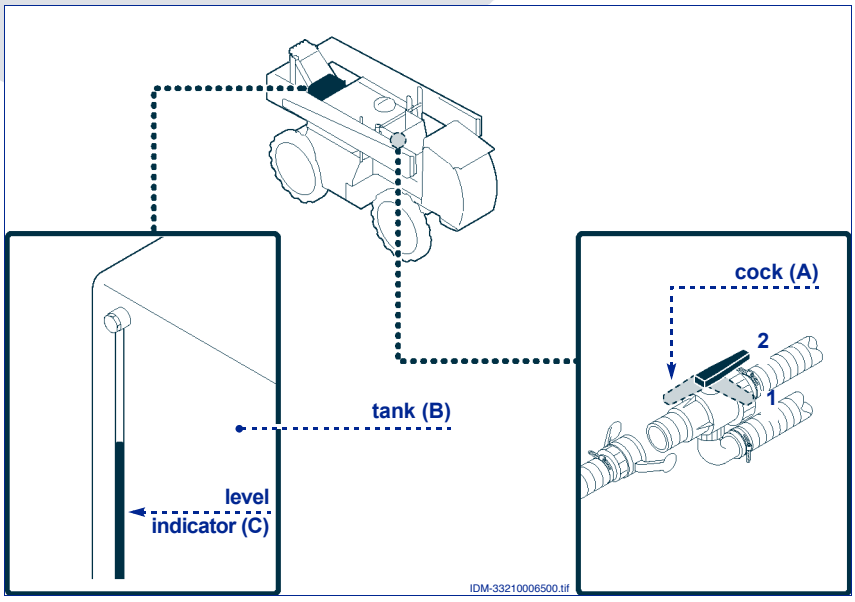


Caution - Precaution

The hose must not come into contact with chemicals to avoid the contamination of the water source.

FILLING THE SYSTEM CLEANING TANK

During supply from the tank, open (pos. 2) cock **(A)** to fill tank **(B)** and close it (pos. 1) simultaneously when the desired level is reached. The level can be seen on indicator **(C)**.



Important

The tank (B) must be filled with clean water.

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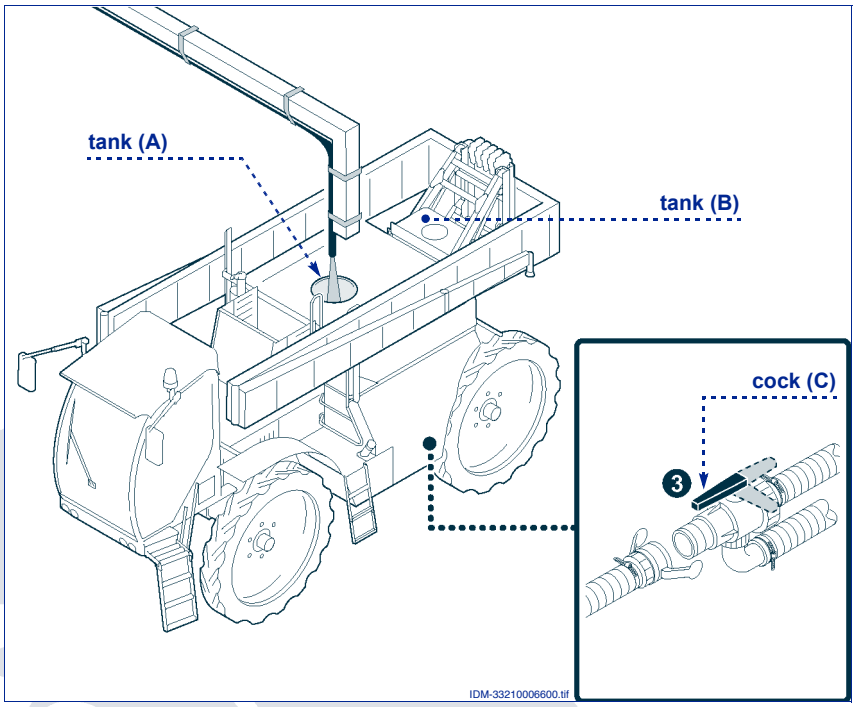
FILLING WITH WATER FROM A HEIGHT

Use an external water source or a reservoir situated higher up than the tank inlet **(A)**.
To fill the fuel tank **(B)**, use an external water source and put the valve **(C)** on position 3.



Important

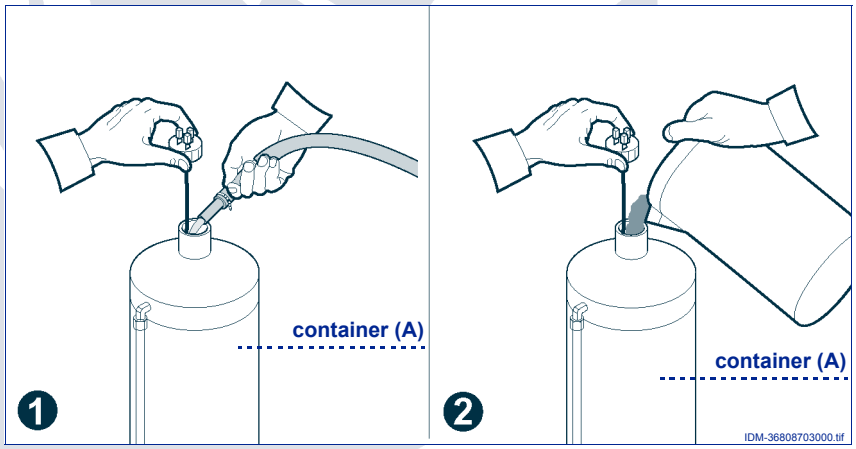
The cup filter (1 mm mesh size) must be fitted over the tank filling inlet (A).

Important

The tank (B) must be filled with clean water.

ROW MARKER PRODUCT FILLING

Fill the container **(A)** with water and add the foaming agent (about 0,5 litres for a full tank).



CHEMICAL PRODUCT PREPARATION

Danger - Warning

The use of products which are not specifically authorised for crop spraying is strictly prohibited. Read the instructions on using spray chemicals provided by the manufacturer on the packet carefully.

Before starting the preparation of the chemical product, adopt all measures that are necessary to avoid contamination danger and risks for humans, animals and the environment.
In particular:

- Wear protective clothing to avoid direct contact with parts of the body, especially in the presence of wounds.
- Wear protective devices to protect the face, head, hands, using rubber gloves, gas masks, goggles and a helmet.
- Do not use individual protective devices that are not in perfect condition, in particular check the condition of the gas mask and cab filters.
- Keep the chemical products out of the reach of unauthorised persons (especially children and the disabled).

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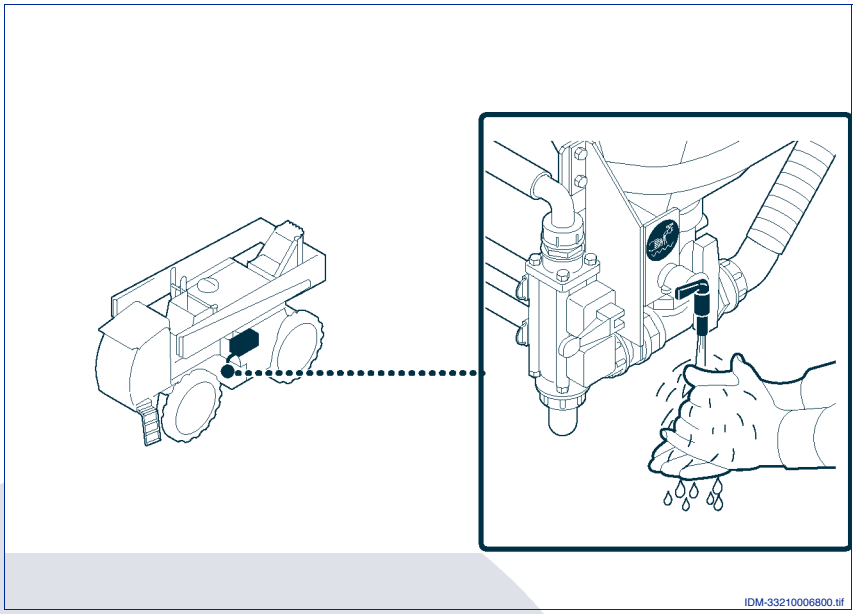
– Arrange all the equipment that is necessary to handle the chemical product and the mixture during the preparation, filling, draining and cleaning of the tank, as well as during the product spraying, adjustment, replacement or addition of pesticides or herbicides and during maintenance operations.
– Calculate the exact quantity of product to be mixed according to the surface to be treated and comply with the instructions supplied by the herbicide/ pesticide manufacturer. Do not mix different products together.
– In case of accidental contact of the product or mixture with the skin, wash immediately with clean water. In the event of discomfort, seek medical assistance, showing the product label.

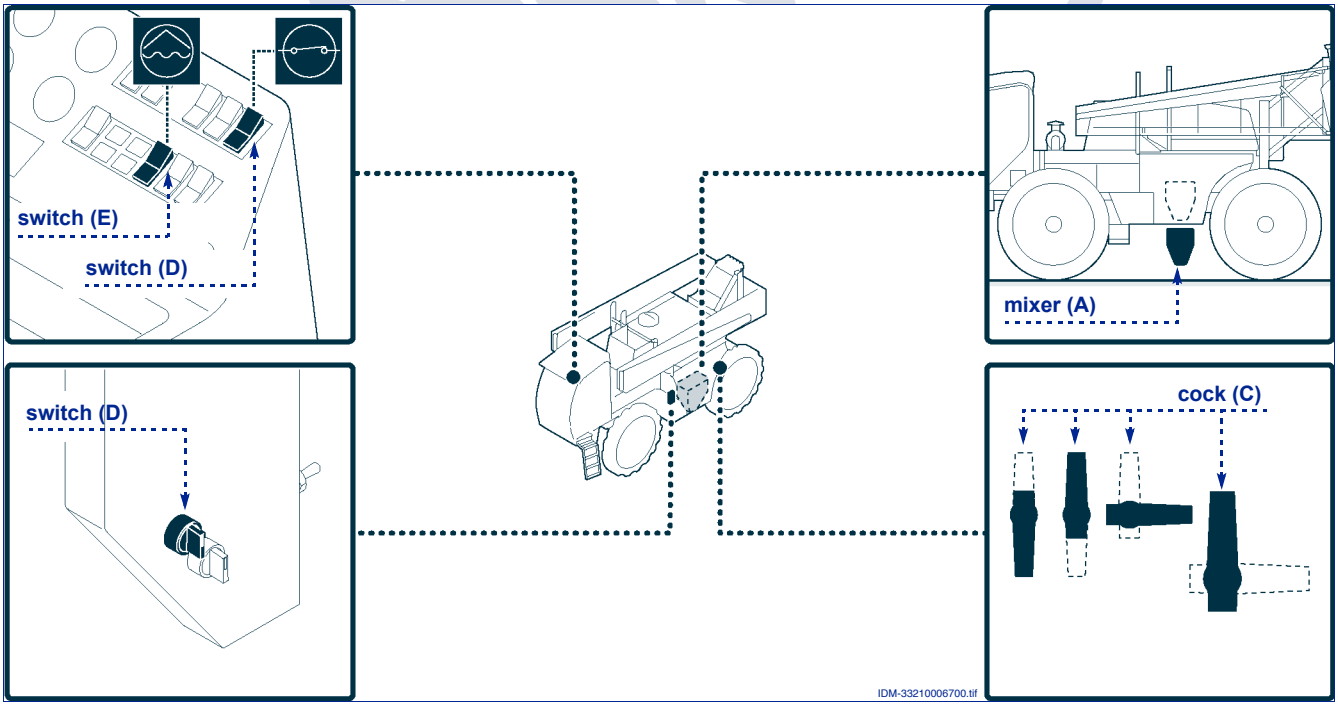


Caution - Precaution

Do not dispose of the product, the mixture or other pollutant in the environment. Disposal must be carried out in compliance with the regulations in force.

To mix the product, follow the procedure below.

1 - Make sure the system is clean and fill the necessary amount of water for treatment in the tank and in the "clean water" tank.
2 - Lower mixer **(A)** to facilitate the filling procedures.
3 - Turn the cocks **(C)** as indicated in the figure.
4 - Use switch **(D)** to activate operation controls.
5 - Use the switch **(E)** to activate the pump.
6 - Carry out the operations for the preparation and mixing of the chemical (see leaflet 5).
7 - When the operation is complete, raise the mixer.



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SPRAYING PARAMETER SETTING

The parameters should be set according to the machine forward speed, (chosen according to the conditions of the land), to the quantity of product to be sprayed in litres per hectare (see instructions on the product packet) and depending on the type of nozzle used.

Thanks to these parameters, the operating pressure can be obtained by consulting the data in the spraying table positioned directly on the tank.
The table below is merely an illustration to provide an example of consultation and search for the necessary values.

Distribution table

	ISO	bar	l/min	4 km/h	5 km/h	6 km/h	7 km/h	8 km/h	9 km/h	10 km/h	12 km/h	14 km/h	16 km/h	18 km/h	20 km/h
Yellow	11002	1,5	0,56	168	134	112	96	84	75	67	56	48	42	37	34
		2	0,66	198	158	132	113	99	88	79	66	57	50	44	40
		3	0,8	240	192	160	137	120	107	96	80	69	60	53	48
		4	0,91	273	218	182	156	137	121	109	91	78	68	61	55
		5	1,02	306	245	204	175	153	136	122	102	87	77	68	61
Blue	11003	1,5	0,85	255	204	170	146	128	113	102	85	73	64	57	51
		2	0,98	294	235	196	168	147	131	118	98	84	74	65	59
		3	1,2	360	288	240	206	180	160	120	120	103	90	80	72
		4	1,39	417	334	278	238	209	185	139	139	119	104	93	83
		5	1,55	465	372	310	268	233	207	155	155	133	116	103	93
Red	11004	**1,5**	1,13	339	271	226	194	170	**151**	136	113	97	85	75	68
		2	1,31	393	314	262	225	197	175	157	131	112	98	87	79
		3	1,6	480	384	320	274	240	213	192	160	137	120	107	96
		4	1,85	555	444	370	317	278	247	222	185	159	139	123	111
		5	2,07	621	497	414	355	311	276	248	207	177	155	138	124

Value search example

Quantity to spray indicated
on the product .....151 litres per hectare (l/ha)
Forward speed .....9 km/h
Nozzle ..... Red type 11004

If you search for these values (see highlighted part of the table), you will obtain the correct pressure to use, which in this case is 1,5 bar.

If the pressure value obtained from the table is not within the above pressure range, change the forward speed value or the type of nozzle used.

Carry out a trial spraying with clean water to check that the adjustment has been made correctly.

Caution - Precaution

The operating pressure must remain between 1,5÷5 bar.

FORWARD SPEED DURING SPRAYING

To calculate the forward speed, proceed as follows:

1 - establish the correct forward speed, according to the number of tractor engine revolutions covering a section of land.

2 - cover a one hundred metre section previously marked, at the chosen speed and with a constant number of engine revolutions, measuring the amount of time taken in seconds.

3 - consult the speed control table to obtain the forward speed covered according to the amount of time taken.

Speed control table

Speed (km/h)	4	5	6	7	8	10	12
Time x 100 m (sec)	90	72	60	51	45	36	30

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NOZZLE SPRAYING CHECK

After setting the product spraying parameters, you must check that the value for the quantity of product sprayed corresponds to the value in the table.

Individual nozzle spraying check (l/min)

1 - Place a graduated container beneath a nozzle operating with pressurised clean water at the chosen pressure for exactly one minute.

2 - Check that the quantity of water collected in the graduated container corresponds to the value in the spraying table.

3 - Repeat this operation on three or four nozzles.

Spraying check of litres per hectare (l/ha)

This check should be carried out by performing a spraying test with clean water on a one hundred metre long section of land, proceeding as follows:

1 - set the forward speed value and the operating pressure value as described on page.

2 - fill the tank completely.

3 - spray water with the bar extended on the one hundred metre distance.

4 - fill the tank up, measuring the litres of water used.

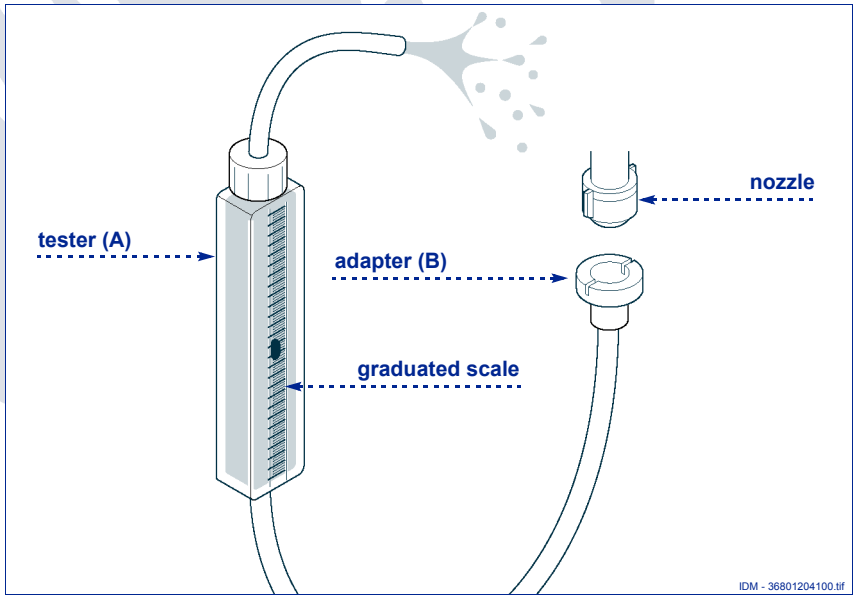
5 - check in the spraying table for the hundred metre test that the value indicated under the quantity of product to be sprayed (e.g.: 200 l/ha) and the bar length (e.g.: 10 m) corresponds to the litres of water used.

Measurement with “nozzle tester” (upon request)

1 - Connect tester **(A)** with adapter **(B)** to the central nozzle of every boom section.

2 - Read the l/min of the product that is being sprayed by means of the graduated scale.

3 - In the distribution table, check that for the 100-meter test the value indicated matches the number of litres used.



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Spraying table for the one hundred metre test

Quantity of product to be sprayed in l/ha	bar length (m)																	
	6	8	10	12	12,5	14	15	16	18	20	21	24	27	28	30	32	33	36
100	6	8	10	12	12,5	14	15	16	18	20	21	24	27	28	30	32	33	36
150	9	12	15	18	18,7	21	22,5	24	27	30	31,5	36	40,5	42	45	48	49,5	54
200	12	16	**20**	24	25	28	30	32	36	40	42	48	54	56	60	64	66	72
300	18	24	30	36	37,5	42	45	48	54	60	63	72	81	84	90	96	99	108
400	24	32	40	48	50	56	60	64	72	80	84	96	108	112	120	128	132	144
500	30	40	50	60	62,5	70	75	80	90	100	105	120	135	140	150	160	165	180
600	36	48	60	72	75	84	90	96	108	120	126	144	162	168	180	192	198	210

litres x 100 m

If this check is carried out on a five hundred metre section, more precise data will be obtained; in this case, however, the value for the litres of water used will be five times that indicated in the table.

Formula to check the liquid sprayed in litres per hectare (l/ha)

$$\text{Quantity sprayed (l/ha)} = \frac{\text{Liquid per nozzle (l/min) x constant 600}}{\text{Distance between jets (0.5 m) x speed km/h}}$$

This formula can also be transformed to establish the forward speed necessary or to determine the quantity of liquid for each nozzle.

$$\text{Speed km/h} = \frac{\text{Liquid per nozzle (l/min) x constant 600}}{\text{Quantity sprayed (l/ha) x distance between jets}}$$

$$\text{Liquid per nozzle l/min} = \frac{\text{Quantity sprayed (l/ha) x distance between jets x speed km/h}}{\text{Constant 600}}$$

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PRODUCT SPRAYING

Important

Before starting the treatment, consider whether the weather conditions can guarantee an effective treatment. Do not spray the product when the wind is stronger than 5 m/sec. In case of moderate winds, use all the necessary measures to avoid any product spraying outside the area to be treated (reduce the bar height and mist).

To spray the product follow the procedure below.

1 - Install the correct nozzles for the product to be sprayed (see the purpose provided table attached to the manual).

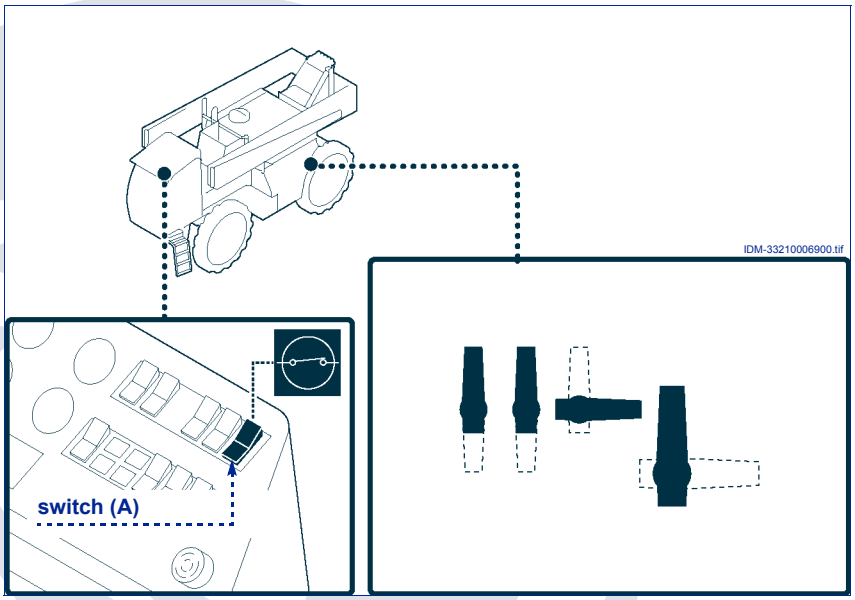
2 - Turn the cocks as indicated in the figure.

3 - Access the operator's seat and use the switch **(A)** to activate the operating controls.

4 - Set the operating parameters on the computer (see leaflet 13).

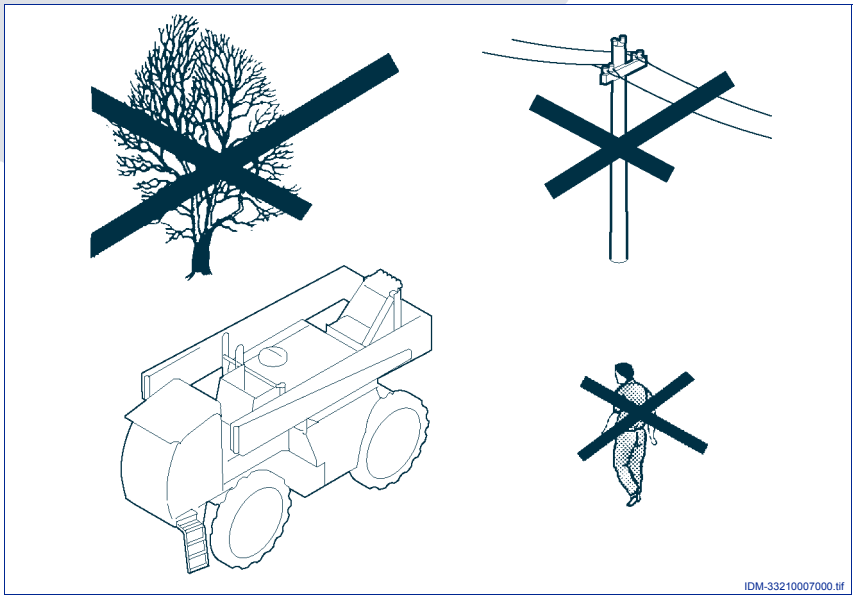
5 - Carry out the nozzle spraying check operations (see page 13).

6 - Use the appropriate controls to extend the spraying bar.



Danger - Warning

Make sure that there are no persons or obstacles in the bar extension area.



7 - Activate the air hose, where present (see leaflet 10).

Important

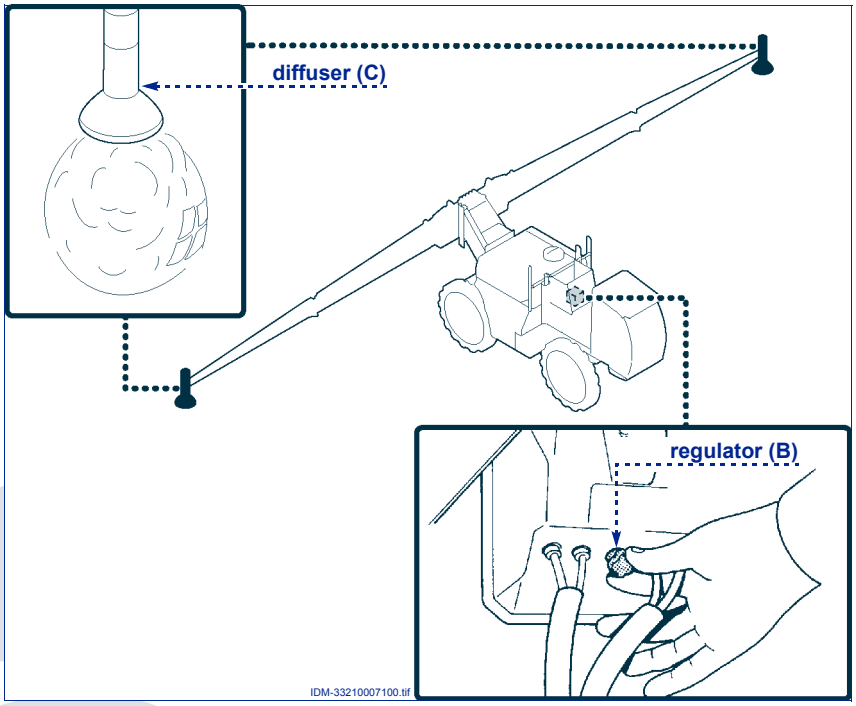
The fan revolution speed must be adjusted according to the operating requirements. This speed must be set at minimum values on bare ground or with low vegetation crops.

8 - If necessary, fill the row marker product (see page 10).

9 - Activate the row marker foam tank (see leaflet 13) and use the regulator **(B)** to adjust the quantity of foam distributed by the diffusers **(C)**.

10 - Supply the desired bar sections (see leaflet 13).

11 - Bring the engine to 2000 rpm and move to the desired spraying location.

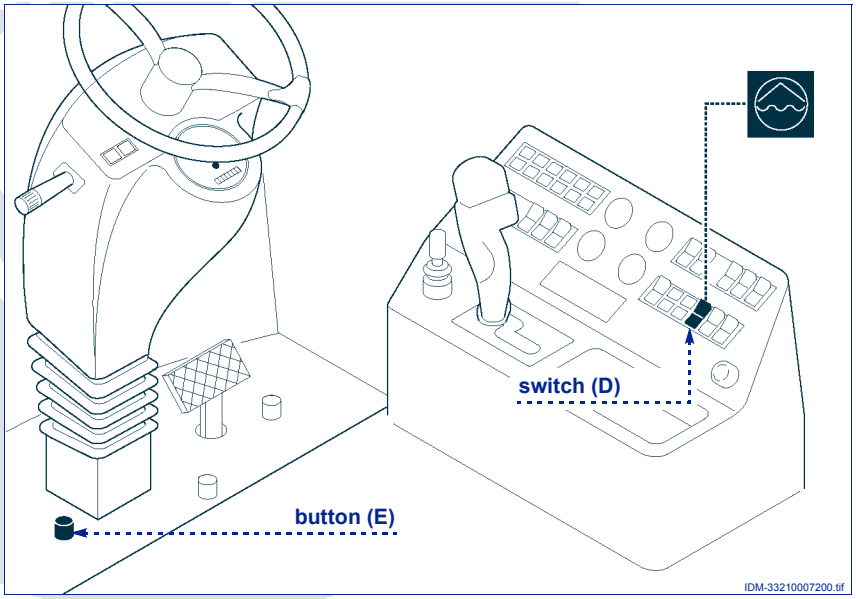


Important

Block the balancing device when working on a counter slope or with part of the bar retracted.

12 - Activate the “Four wheel drive” mode (see page 8).

13 - Use the switch **(D)** and then the button **(E)** to start spraying.



Important

To reduce the bar oscillations and obtain a very uniform spraying, maintain a forward speed of 8÷10 km/h.

14 - Close the distribution and deactivate the product spraying pump once spraying is complete.

15 - Close the bar extensions and retract them in their transportation position.

Important

If the machine is fitted with an air hose and a side extension closing spraying bar, stop the fan before retracting the bar extensions.
If the machine is fitted with an air hose and a top extension closing spraying bar, reduce the number of fan revolutions to 1000 rpm and retract the bar extensions, then stop the fan.

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SYSTEM CLEANING AND DRAINING THE RESIDUE

Important

At the end pf every work day, before changing the product, and after any interval longer than an hour, wash the system carefully. Clean the system according to the instructions provided in "Chemical product preparation" (see page 10).

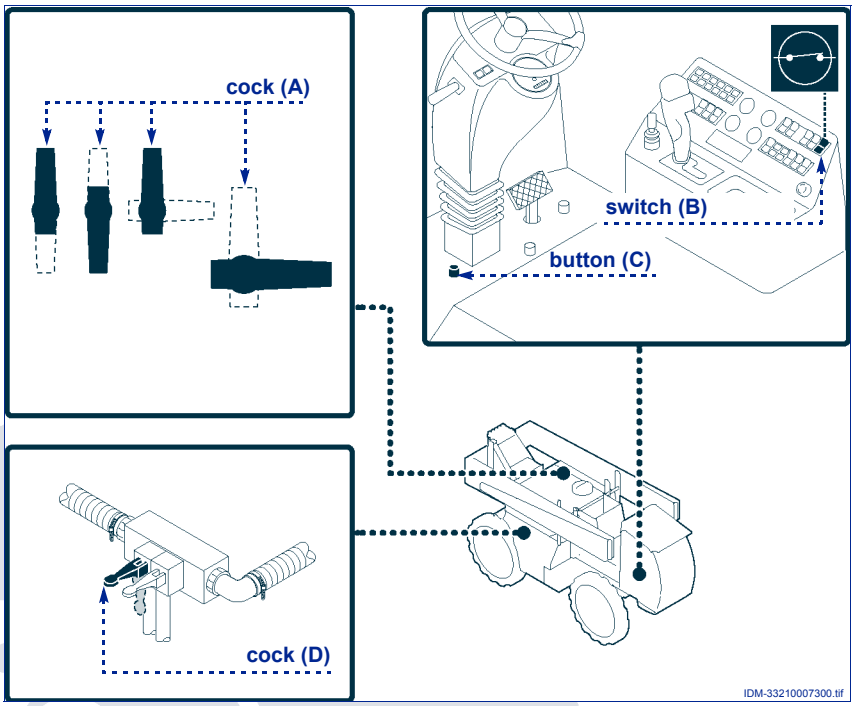
For this operation follow the procedure below.

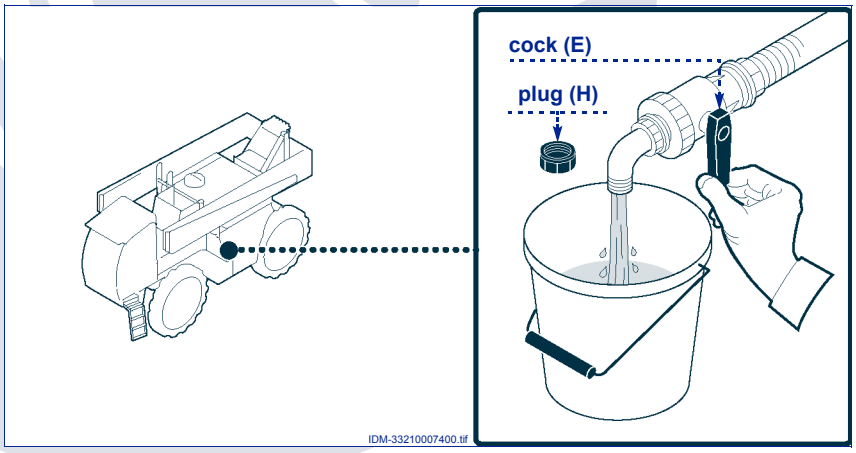
1 - Dilute any liquid residue in the bottom of the tank with clean water with 1:10 ratio and spray it on the treated surface (see page 15).

2 - Position the cocks **(A)** as indicated in the figure, use the switch **(B)** and then the button **(C)** to activate the pump at a pressure of 3÷5 bar (see leaflet 13). The system will be clean when clean water comes out of the nozzles.

3 - Turn on the cock **(D)** to clean the inside of the tank.

4 - Arrange a container with suitable capacity in order not to dispose the product in the environment, unscrew the cap **(H)** and open the cock **(E)**. When the operation has been completed, close the cock **(E)** and screw the cap on **(H)**.



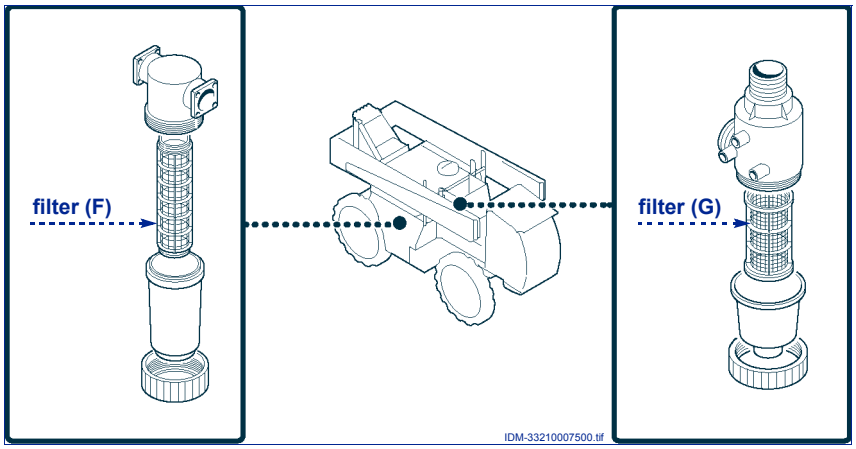


5 - Remove the supply filter **(F)**, mesh size 0,16 mm, and wash it with a water jet.

6 - Remove the intake filter **(G)**, mesh size 0,25 mm, and wash it with a water jet.

7 - Remove the in-line bar filters (see leaflet 9) and wash them with a water jet.

8 - Wash the outside of the tanks and the areas in contact with the product with a water jet.



MACHINE CLEANING

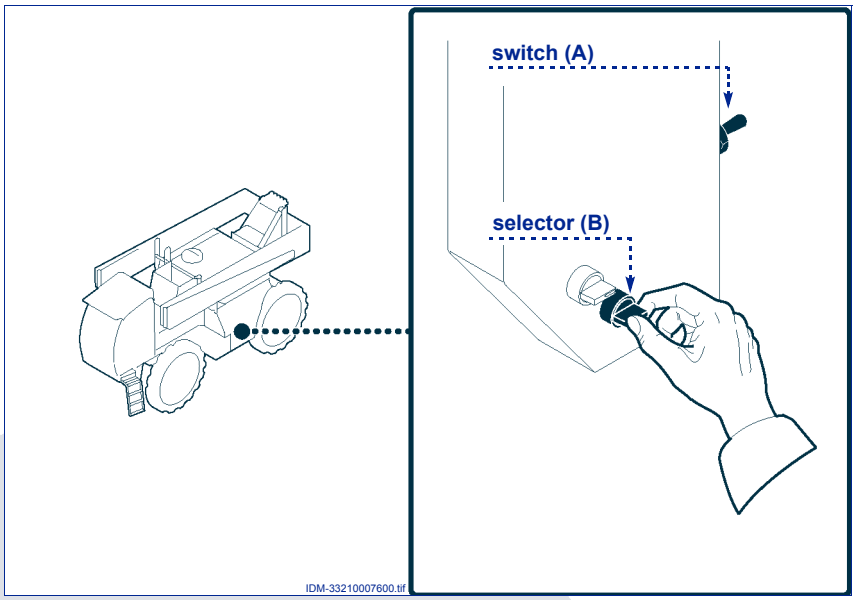
For this operation follow the procedure below.

1 - Start the machine's engine.

see page

2 - Use switch **(A)** to set the motor to 1000 rpm.

3 - Use the selector **(B)** to activate the centrifugal pump.



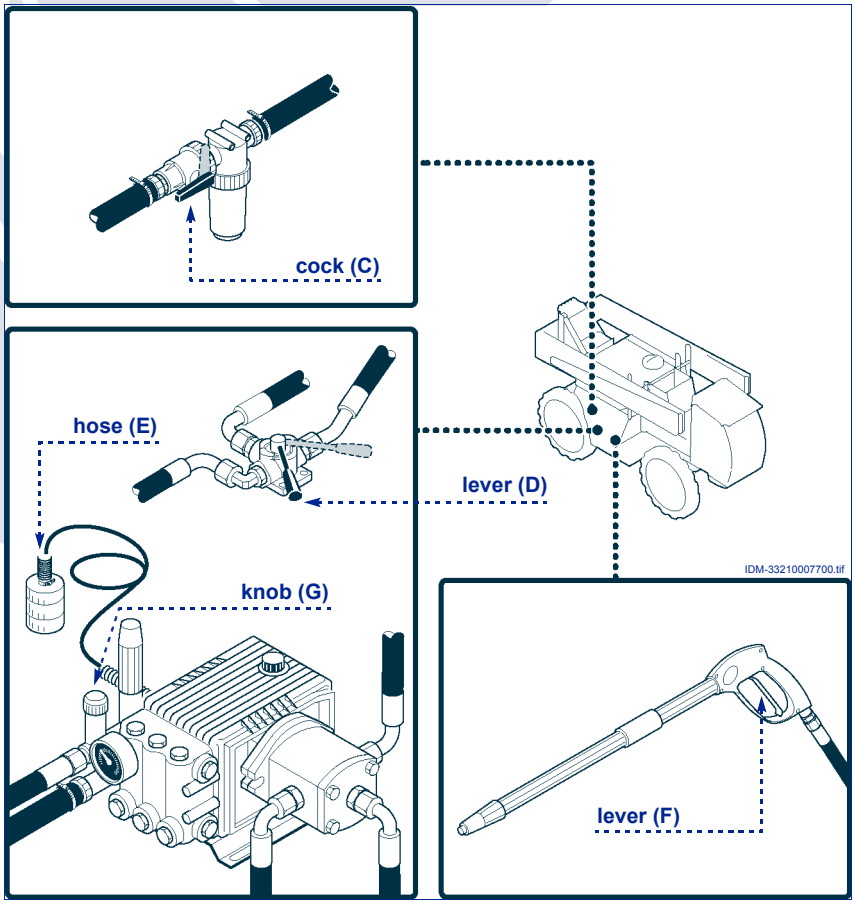
4 - Turn the cock **(C)** as indicated in the figure.

5 - Position the lever **(D)** as indicated in the figure.

6 - Insert the hose **(E)** into the soap container and turn the knob **(G)** to enable the intake of soap.

7 - Take hold of the nozzle and unwind the hose.

8 - Use the lever **(F)** on the nozzle to begin cleaning.



Important

Do not direct the pressurised water jet towards electrical parts.

9 - When this operation is complete, rewind the nozzle hose, pulling it slightly outwards and then releasing it, and carry out the above operations in the reverse order.

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MAINTENANCE INFORMATION

INSTRUCTIONS FOR MAINTENANCE

Before carrying out any maintenance work, activate all the safety devices and consider whether it may be necessary to provide appropriate information to the operators and the staff working near the machine. In particular, provide proper signs in the areas surrounding the machine and do not allow anyone to access any devices that, when activated, may cause unexpected dangerous conditions, resulting in damages to personal safety and health.

Danger - Warning

Always wear a gas mask before carrying out any intervention inside the main tank. However, any intervention must be carried out by authorized technicians.

Caution - Precaution

Unless otherwise expressly indicated, maintenance work must be carried out with the engine turned off, the ignition key not inserted and kept by the operator. The person in charge of the maintenance work must consider all the necessary measures to guarantee the safety of the persons participating in the work, in compliance with the requirements set forth by the regulations in force on safety in the workplace.

Important

Replace worn components with original spare parts. Use oils and greases recommended by the manufacturer. This will ensure the perfect operation of the machine and the safety level required. Do not dispose of polluting liquids, used parts and maintenance material into the environment. Disposal must be carried out in compliance with the current regulations in force.

TABLE OF MAINTENANCE WORK

Frequency	Component	Type of intervention	Action	Page
Each working day	Water system	Carry out the cleaning		17
Every year	Distribution pump	Check the efficiency	Contact an authorised workshop	

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CLEANING THE "RAPID CHECK" UNIT

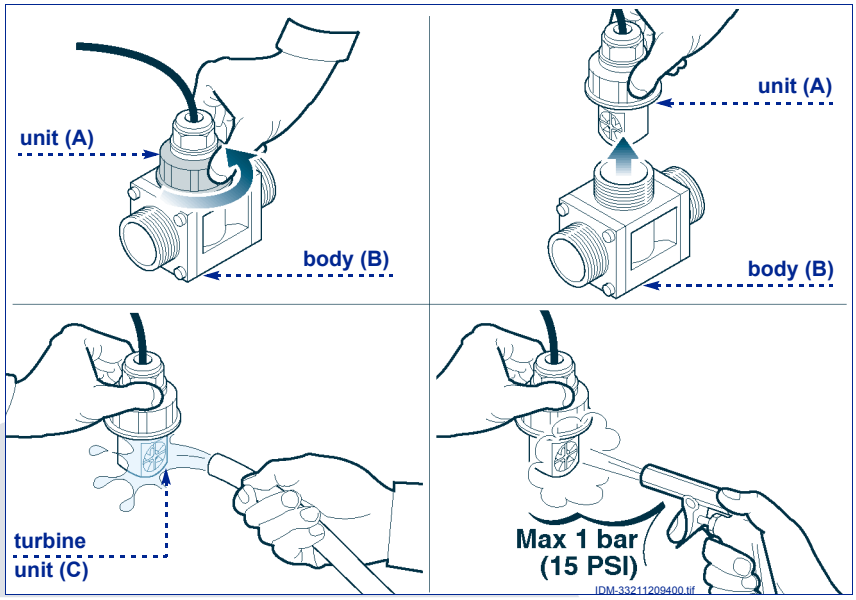
For this operation follow the procedure below.

1 - Unscrew the assembly that holds the "Rapid Check" unit **(A)** in the body **(B)**.

2 - Remove the "Rapid Check" **(A)** unit from the body **(B)**.

3 - Use clean water to wash any impurities out of the removable turbine unit **(C)**.

4 - Use compressed air to verify that the turbine unit rotates freely.



EXTRAORDINARY CLEANING "RAPID CHECK"

For this operation follow the procedure below.

1 - Unscrew the sensor **(A)**.

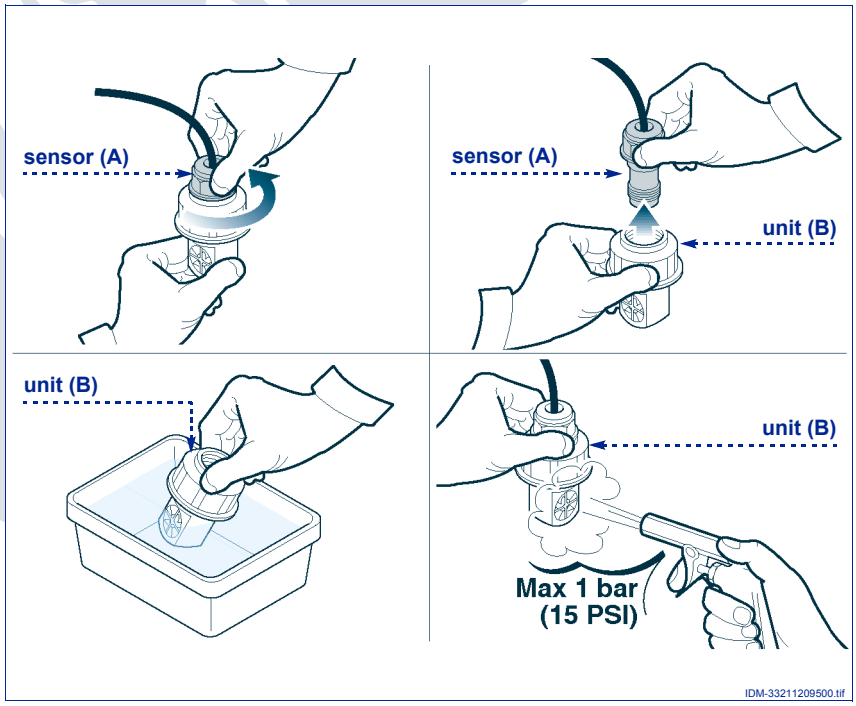
2 - Separate the sensor **(A)** from the "Rapid Check" unit **(B)**.

3 - Place the "Rapid Check" unit **(B)** in a detergent bath for a few hours.

4 - Remove the "Rapid Check" unit **(B)** from the detergent bath. Use compressed air to verify that the turbine unit rotates freely. If necessary, replace the "Rapid Check" unit with a new one.

Important

In the event of replacement, carry out the pulse adjustment of the new unit (see leaflet 13).



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FAILURE INFORMATION

TROUBLES, CAUSES, REMEDIES

The purpose of the following information is to identify and correct possible faults and malfunctions that may occur when using the machine.

Centrifugal pump and spraying pump systems

Problems	Cause	Remedy
The product spraying pump and self-priming pump are not turning regularly	Maximum pressure valve on the solenoid valve block is clogged	Loosen the valve by 4-5 turns and run the pump at 2000 rpm 3-4 times. Screw the valve back on to its original position
	Pump is broken	Replace the pump
The product spraying pump and self-priming pump are not turning	Electrical connection is interrupted	Check the electrical connection on the solenoid valve block
	Hydraulic motor of delivery pump and/ or hydraulic motor of self-priming pump faulty	Replace motors
The pump does not pressurize control unit	Suction filter clogged	Disassemble filter and clean cartridge
	Control unit pressurized filter partly clogged	Disassemble filter and clean cartridge
	Air intake in the pump intake circuit	Check sealing of pump intake circuit couplings
	One or more pump valves do not seal well	Check valve seats and clean
	Worn valves	Replace valves and relevant seats, if necessary
The pump pressurizes the control unit, but nozzle spraying is not constant	Clogged line filters (if fitted)	Disassemble filters and clean cartridge
	Clogged nozzles	Disassemble nozzles and clean (use a soft bristle brush)
	Possible pipe clogging due to foreign matter	Disassemble coupling and check that seals are in their seats. Blow air into the pipes
	Possible clogging of delivery PVC pipes due to their bending	Bring the pipe back to its normal bending or replace the pipe
The pump is noisy	It sucks air	Check sealing of intake circuit
	Intake and/or delivery valve springs damaged	Replace springs (see pump manual)
Pump tank oil has gone white or is leaking out	One or more diaphragms are broken	Disassemble the pump and heads. Replace all diaphragms after thoroughly washing the pump with fuel oil or diluent. Bring the oil back up to level (see pump manual).

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Product spraying system

Problems	Cause	Remedy
The bar does not spray the product	Mixer operating cock turned towards the mixer	Turn the cock in the opposite direction
	Clogged intake filter	Clean the filter
	The general ON-OFF valve is not functioning	Check the electrical connectors on the solenoid valves (contacts could be oxidised). Clean or replace the contacts
	Clogged nozzles	Disassemble the nozzles and clean them
The machine is not spraying the product correctly (also see leaflet 13)	The flow meter is not functioning	Disassemble the flow meter and replace the bearings with the kit provided
		Check that the fan is not broken. Replace it
		Check the sensor connector. Make sure that all the wires are connected
	The odometer is not functioning	Check the distance between the sensor and the magnet (5-6 mm) of the wheel hub
		Clogged filters
	Replace the sensor	Clean the filters or replace them
The pressure adjustment valve not functioning	Valve clogged	Remove the valve from the distribution unit, clean or replace it
	5 A fuse is blown	Replace the fuse
	Motor valve is burned out	Replace the valve
Control unit pressure gauge pointer moves in a jointing manner	Suction filter is partly clogged	Disassemble filter and clean cartridge
	Air suction from pump	Check sealing on intake circuit and clamp tightening
	Pressure gauge is defective	Replace pressure gauge
	The tube in the delivery pump is deflated.	Check inner tube pressure (1/3 of working pressure)

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